ADMINISTRATION REPORT

OF THE

FOREST DEPARTMENT

OF THE

MADRAS PRESIDENCY

FOR THE

YEAR ENDING 31ST MARCH 1926

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ANNUAL ADMINISTRATION REPORT OF THE FOREST DEPARTMENT

FOR THE

YEAR ENDING 31ST MARCH 1926

FIRST CIRCLE

CHAPTER I.—CONSTITUTION OF STATE FORESTS.

1. ALTERATION IN AREA.

1. *Reserved forests and reserved lands.*—A portion of the Dhumi Dhumi reserve in *Ganjam* (9 acres) adjoining a temple was disforested to provide sufficient space to accommodate pilgrims on festival days and 2,396 acres were disforested in *Guntur* and *Nellore*. Satyavedu range of the old Chingleput district was added to *Nellore*. A small area of 963 acres of reserved land was declared reserved forest and 19 acres was notified as reserved land. The total area of reserved forest and reserved land on 31st March 1926 was 4,073 square miles and 3 square miles respectively.

2. FOREST SETTLEMENT.

2. Sixty-three acres representing additions in Kesavaram and Sangam reserved forests in *Nellore* were notified under section 16 of Forest Act and 19 acres were under settlement in *Ganjam*.

3. DEMARCATION.

3. *Ganjam.*—A sum of Rs. 15 was incurred for cutting boundary lines fifteen feet wide of the area proposed for reservation in Gundribadi enclosure of Tiliki reserve, and Rs. 9-8-0 was incurred for cutting lines and demarcating the new area near Kaliaguda the reservation of which has since been dropped in the interests of the village community. *Vizagapatam.*—Four bits in the Dharakonda reserved forest were demarcated to a distance of two miles at a cost

of Rs. 4-15-0. The disforestation of these bits was proposed by the Collector to give some relief to the Agency people in Golgonda taluk. *Upper Godavari.*—Fifteen miles of the boundary of Nugur reserved forest was demarcated. Rupees 198 were spent in erecting 330 cairns and widening the boundary to a width of 18 feet over a length of 1 mile, 1 furlong and 9 chains and As. 8 were spent for surveying and rectifying the western boundary of the Gogubaka reserve. The boundary lines of all the reserves in the division were cleared and widened for fire protection by the Koyas and the Reddis, and the cost was debited to 'B. VII (*f*)'. Seventeen miles of the frontier boundary between the Baster state and the Nugur range was inspected by the Range Officer. This ought to have been done by the District Forest Officer but unfortunately he fell ill immediately he reached Venkatapuram *en route* Baster boundary and had to abandon the inspection. *Lower Godavari.*—A sum of Rs. 500 was spent for the reclearing of certain blocks in Rampa aggregating 41 miles and 3 furlongs, and Rs. 50 was spent for demarcating coupes in Polavaram and Peddapur ranges. *Guntur.*—Rs. 18-8-0 were spent on demarcation of lines and building cairns in the portion proposed for disforestation in Vemavaram reserved forest. *Nellore.*—Rs. 8-11-0 were spent in cutting a boundary line 12 feet wide around the disforested area of 10 acres in Veligonda reserved forest and Rs. 5 for repairs to cairns in Sangam and Kadur reserved forests. Reclearing old lines was done free of cost to Government by subordinates everywhere and by Kanchadars in *Nellore*.

4. Forest Surveys.

4. The Survey of India carried out the survey of five reserved forests in Polavaram and Ellore ranges in *Lower Godavari*. Corrected copies of the maps prepared by them have not yet been published. A Madras Survey Party traversed the external boundary of Upputeru blocks I and II and sketches of lines surveyed are reported to have been sent to the District Forest Officer. Local surveys of areas under working were carried out by Range officers in all the divisions. The survey of portions disforested and proposed for disforestation was attended to by the Range officers in *Guntur*.

CHAPTER II.—MANAGEMENT OF STATE FORESTS.

1. Regulation of Management.

5. *Preparation and control of working plans.*—No new working plans were sanctioned. *Ganjam.*—The prescriptions of the Ghumsur working plan were carried out so far as possible though

deviations have been found necessary in connexion with supplying timber to the saw mill at the lowest possible rate. Improvement fellings in Plains Sal Timber working circle, Ravine working circle, Periodic blocks II, III, and IV were discontinued in accordance with the Chief Conservator's orders. Mature trees were however extracted from these Periodic blocks. The Mohiri forests of the Berhampur range were worked under Mr. Wimbush's working scheme. *Upper Godavari.*—The revised schemes for working bamboo coupes in the division and for *Yepi* areas in the Bhadrachalam range were approved and put into force during 1926–27. A tentative scheme for working the teak and non-teak areas in the Bhadrachellam, Marrigudem, Pulusumamidi and Lakkavaram ranges was drawn up and submitted to the Conservator. The scheme was tentatively ordered to be brought into force pending inspection of the division by the Conservator. *Lower Godavari.*—The revised proposals for working the bamboo areas on a four-year rotation were submitted to the Chief Conservator of Forests for sanction. The scheme for forming casuarina plantation in the Karavaka portion of the Kandikuppa reserve was approved by the Chief Conservator. The teak areas in Bedadavole, Kovvada and Kopalli reserved forests and the mangrove areas of the Coringa and Kandikuppa reserves were worked under schemes already sanctioned. No regular working has yet been proposed in Papikonda reserved forest owing to its inaccessibility; the teak areas have, however, been mapped and experiments are in progress as how best to tend and regenerate such areas. The question of means of extraction is engaging attention. *Guntur.*—Takkelapad reserve was worked under the working plan sanctioned in Chief Conservator's Proceedings No. 995, dated 22nd November 1923. The working plan for the Kondapalli reserve was under revision by the District Forest Officer. The revision of the Repalli and Kistna mangrove working plans was pending and the work is now being undertaken Simple schemes for working the forests of Vinukonda, Sattenapalli and Palnad ranges await completion. The tentative working plan for Bollapalli and Guttikonda reserves expired before the commencement of the year and it was not renewed; orders were issued to sell the next coupe in each of the three new felling series under formation on the simple coppice system pending the completion of a revised working scheme. *Nellore.*—The working plan for the Sriharikota range was completed and submitted to the Conservator. This was returned with instructions for revision. The preparation of a tending working plan for the Red Sanders area in the district is pending. Stock mapping has to be done in three ranges—Rapur, Udayagiri and Kanigiri. A Special Duty ranger appointed for the purpose has completed stock mapping in the Rapur range and is working in the Udayagiri range.

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The prescriptions of the sanctioned working plans were generally adhered to. In *Vizagapatam* for want of demand Sarugudu fuel and bamboo coupes, Palakonda bamboo coupe and tangedu bark were not sold. In *Nellore* several working series which were in arrears for want of demand or poor growth therein were eliminated from working under proper sanction.

2. Communication and Buildings.

6. No new work costing more than Rs. 5,000 was sanctioned.

7. *Roads and bridges.*—Rupees 6,622 were spent on new works and Rs. 5,621 on repairs. The existing roads were kept in repair. The important new works carried out were:—*Ganjam.*—Construction of Rambha-Balinkia diversion road, 5 miles, 1 chain, Rs. 1,661. *Vizagapatam.*—Converting Kondasantha-Busilikota fire line into a cart-track (1 mile, 4 furlongs and 6 chains) and widening Kondasantha-Tadaparti road, 2 miles, 7 furlongs and 7 chains. *Upper Godavari.*—Construction of Polipaka-Tatlanka road, 2 miles, 3 furlongs and 6 chains, two drag paths in Seetharampuram reserve and a road in Walsugrivi reserve, 2 miles, 5 furlongs and 2 chains. *Lower Godavari.*—Aligning a road trace in Papikonda reserve, 4 miles, extension of Timmapuram-Veerabhadrapuram road, 4 furlongs, 3 chains, construction of a road in Sudikonda reserve, 2 miles, 10 chains. *Guntur.*—Construction of a road from Dongamarlabhavi to Gangadigunta, 2 miles, 2 furlongs.

8. *Buildings.*—Rupees 15,292 were spent on new works and Rs. 17,875 on repairs. The latter figure includes the cost of temporary establishment employed, Rs. 4,515. The important buildings constructed were:—*Ganjam.*—Construction of quarters for one forester and two forest guards at Bhagavanpur, section officer's quarters at Gayagonda and Rambha, motor-shed at Tilisingi bungalow, eight forest guards' sheds in different places and an inspection shed at Tarasingi. The construction of a quarters for the section officer at Latipada was taken up and is in progress. *Vizagapatam.*—Forest subordinates' lines at four different places. *Upper Godavari.*—Construction of forester's quarters at Murmur, Tummuleru, Kundalur and Lakkavaram, range clerk's quarters at Venkatapuram. *Lower Godavari.*—One shed for forester at Sudikonda and a camp shed at Ravigudem. *Guntur.*—Completion of subordinates' lines at Ipur, construction of subordinates' quarters at Bollapalli, improvements to rest-house at Kamalacheruvu and conversion of the subordinates' quarters at Srigiripad into a rest-house.

9. *Other works.*—There were no works of importance.

3. Protection of Forests.

(a) *General protection.*

10. *New cases of the year.*—The number of forest offences reported during the year and their classification are compared with those of the preceding year in the following statement:—

Cases.	Injury to forests by fire.		Unauthorized felling.		Unauthorized grazing.		Other offences.		Total.	
	1924–25.	1925–26.	1924–25.	1925–26.	1924–25.	1925–26.	1924–25.	1925–26.	1924–25.	1925–26.
Reserves.										
Cases taken to court ..	3	3	661	542	713	649	21	24	1,398	1,218
Cases compounded ..	1	2	1,689	1,599	1,309	1,347	101	144	3,100	3,092
Cases undetected ..	85	94	62	46	1	17	..	..	148	157
Total ..	89	99	2,412	2,187	2,023	2,013	122	168	4,646	4,467
Unreserves.										
Cases taken to court ..	..	..	169	169	11	5	16	9	196	183
Cases compounded ..	..	..	1,452	1,026	192	74	303	214	1,947	1,314
Cases undetected ..	1	..	45	27	1	..	1	10	48	37
Total ..	1	..	1,666	1,222	204	79	320	233	2,191	1,534

Reserves.—The figures on the whole show a decrease. The decrease was markedly in *Guntur* and was ascribed partly to the reduction of area due to the disforestation of the coastal reserves of Bezwada Range (about [illegible]8 square miles) and partly to improved protection and the consequent diminution of crime. Under *Nellore* there was marked increase in the number of offences, due chiefly to the addition of Satyavedu Range.

Unreserves.—There was decrease in the number of offences in *Vizagapatam, Lower Godavari, Guntur* and *Nellore.* These figures are furnished by the Revenue Divisional Officers and no details are reported to be available.

Cases, old and new, dealt with during the year.—The percentage of convictions was 31 as compared with 36 of last year and is ascribed to the payments of compounding fees after the cases were taken into court. Of the 1,495 cases taken to court 1,031 were acquittals. Of these 979 were due to payment of compounding fees in court and 18 were withdrawals and only 34 were acquitted by the magistrates on their demerits, i.e., about 3 per cent. The punishments inficted by the magistrates are reported generally adequate. The usual notice of warning was published in the District Gazette and by beat of tom-tom to the villagers against setting fire to the reserved forests. No other special steps were taken such as

suspension of privileges, closure of reserves to grazing, enhancement of grazing fees and so forth.

The total number of cases compounded was 5,185 and the compounding fees realized Rs. 72,062.

11. A reward of Rs. 97 was granted to one forester, five forest guards and one watcher and another of Rs. 60 to one forester, five forest guards and one watcher for detecting big cases under trying circumstances in *Guntur*. Rupees 484 were granted to kanchadars in *Nellore* as rewards to encourage efficient protection of kanchas and closed coupes.

(b) *Protection from fire.*

12. The areas attempted to be protected and actually protected are shown in Form 72. The area under special protection was 977,727 acres. Of this an area of 910,625 was successfully protected at a cost of Rs. 10,038. The percentage of failure was 7 per cent and includes fires over an area of 75 square miles which is reported to have been caused by the Survey of India Party in *Upper Godavari* to facilitate easy perception of the physical features of the locality and for free movement through the forests but no complaint was made at the time. But for this, the fire season may be said to be more favourable than the previous year's.

The average cost per square mile of special protection attempted was Rs. 7-1-0 against Rs. 9-15-4 of the previous year. The decrease was due to the reduction of rates for early burning and rewards introduced in *Upper Godavari*. In *Upper Godavari* early burning was carried out in Nugur and Cherla ranges and in the Rekapalli and Marrigura reserves of the Pulusumamidi and Lakkavaram ranges. The total area dealt with was 601 square miles and the area successfully protected was 517 square miles. The cost of the operation including rewards to Koyas and Reddis was Rs. 1,387 or an average of Rs. 2-4-0 per square mile against Rs. 9 in the previous year. The decrease was due to the reduction of rates for early burning and rewards from Rs. 8 to Rs. 4 introduced. In *Guntur* early burning was tried by the subordinates at Kondapalli and as they did the work a little late, the fire was much too intense in the more open places and seedlings and all low growth was killed on certain areas. The District Forest Officer reports that no areas were specially protected and that no special steps for the protection from fire of the forests are necessary as there is generally no grass during the hot weather. In *Nellore* the modified early burning operations were continued in the hilly ranges of Kanigiri, Udayagiri, Rapur and Satyavedu. The system was described in the report of last year. Work was started about the middle of January 1926 owing to late rains and closed by the end of March 1926. The area attempted to be protected was 148,682 acres including the

newly added Satyavedu Range and the total cost was Rs. 397-8-0, i.e., Rs. 1-12-0 per square mile. The result is reported generally satisfactory.

The area under general protection was 1,277,966 acres. The area burnt was 12,840 acres or one per cent. The average cost per square mile was Rs. 1-9-0.

The Kondhs of Pondakhol were granted rewards amounting to Rs. 286 for successful protection of the forests from fire. They were also given rewards of bulls at a cost of Rs. 240 for giving up podu cultivation in forests. In *Upper Godavari* a sum of Rs. 1,196 was paid to the Koyas and Reddis for successfully protecting the reserved forests in the division from fire.

The number and origin of fires are compared in Appendix A.

(c) *Protection from cattle.*

13. Two thousand six hundred and seventeen square miles of reserves were open to grazing against 2,667 in the previous year. The decrease was due to closure of felled coupes and additional area to grazing in *Lower Godavari*. Goats were excluded from all reserves. The grazing incidence in *Ganjam* rose from 6·59 of the previous year to 6·12 acres, in *Upper Godavari* from 3·36 to 3·00 acres and in *Guntur* from 2·41 to 2·14 acres. In *Lower Godavari* the grazing incidence fell from 2·00 to 2·08 acres and in *Vizagapatam* there was no change. In *Nellore* out of 457 kanchas 435 were sold at different rates of which 229 are on long lease for three years as compared with 211 of last year. Only 22 kanchas remained unsold for want of demand against 28 last year. The long lease system has now become fairly established and it will be an easy matter for the panchayat staff to transform them into regular panchayats.

The number of cattle licensed to graze was 628,497 and includes cattle grazed in panchayat areas in *Guntur* and *Nellore* and kancha cattle in *Nellore* arrived at in conformity with the instructions issued in Chief Conservator's Proceedings No. 335, Press, dated 5th December 1924.

Compared with last year a decrease in the number of cattle licensed is reported in *Lower Godavari* and is attributed to the enhancement of grazing fees in the upland reserves from 1st July 1925. An increase is reported in *Upper Godavari* and is accounted for by the absence of cattle disease, to correct licensing of all the cattle and to vigilant patrolling.

The number of cattle impounded was 39,001. Decrease was marked in *Guntur* and due to causes explained in connexion with the decrease in the number of offences. In *Nellore* a larger number of grazing cases were detected in closed coupes.

(d) *Protection against injuries from natural causes.*

14. Creepers are alleged to have been cut everywhere by beat subordinates free of cost. *Ganjam.*—To determine the cause and remedy for the unsoundness in young sal, the Silviculturist, Dehra Dun, who visited the district during the previous year suggested certain experiments. To conduct the experiments a suitable plot was selected by the District Forest Officer in consultation with the Conservator. *Vizagapatam.*—Creepers were cut over an area of 130 acres in Samaralli reserve at a cost of Rs. 41. *Upper Godavari.* To favour the existing teak, creepers were cut and soft wooded species were girdled in areas fit for clear felling at a cost Rs. 351. The same was done in the unfelled timber coupes of Bedadavole and Kopalli reserves of *Lower Godavari* division at a cost of Rs. 65. Climbers and inferior species were also cut in the felled coupes of Devancheruvu and Kogida reserves of the Rajahmundry Range and the Tirumalayapalem reserve of the Gokavaram Range at a cost of Rs. 49. *Nellore.*—The experiment mentioned last year of scraping *Loranthus longiflorous*, and *Viscum orientale* from Nux-vomica trees in Sriharikota reserve was continued in 1925-26 over an area of five acres but no tangible results were observed. The experiments are being continued over 15 trees to keep them under better observation. The lopping and pruning of inferior species and the cutting of Loranthus in the Ulavapad reserve undertaken last year were completed at a cost of Rs. 13-12-0. A sum of Rs. 30 was spent for removing Loranthus from the affected branches of *Shorea thunbuggie* trees on the Kambakkam hill of the Satyavedu Range.

CHAPTER III.—SILVICULTURE.

Section 1.—Formation and regeneration of forests.

(i) *General progress of areas under regeneration.*

15. *Ganjam.*—Regeneration of sal continued to be generally satisfactory though it is deficient in some areas under felling in the Ravine working circle. No flowering of *Dendrocalamus strictus* or *Bambusa* was noticed. *Vizagapatam.*—Natural regeneration of sal by seed in Palakonda Range and that of the following species in Dharakonda and Sanivaram reserves was good:—*Pterocarpus marsupium, Terminalia tomentosa, Xylia xylocarpa, Chloroxylon swietenia*, and *Anogeissus latifolia*. Natural reproduction in Narasapatam was on the whole good. *Bambusa arundinacea* has seeded and regeneration is coming up profusely. *Dendrocalamus strictus* also commenced seeding. *Upper Godavari.*—The natural regeneration of teak, *Terminalia tomentosa* and *Pterocarpus marsupium* in the reserves of Lakkavaram, Pulusumamidi and Marrigudem ranges was satisfactory. The coppice growth of teak in the clear

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felled coupes of Bhadrachallam, Marrigudem and Pulusumamidi ranges is reported to be good. *Lower Godavari.*—Regeneration of teak in the teak lankas in Polavaram Range continued to be good. In Peddapur, Polavaram and Gokavaram ranges, natural regeneration of *Dendrocalamus strictus* in reserves where this bamboo had flowered in 1924 (particularly in Annavaram reserved forest) was very satisfactory. *Hardwickia binata* seedlings were coming up quite well in Bedadavole reserved forest of Polavaram Range and *Xylia dolabriformis* poles in parts of Rajavommangi reserved forest. In the mangrove forests the natural reproduction of *Avicennia officinalis* is good under favourable conditions, but only in areas subject to tidal immersion and these are continually changing on account of accretion. *Guntur.*—Natural regeneration of the same species is excellent, in the areas of *mada* forests—creeks where new alluvial soil is deposited by every tide, but the regeneration of all felled coupes is uneven and it is not certain that the decision not to retain standards in these fellings may not have been mistaken.

(ii) *Establishment of reproduction under working plans or schemes.*

(*a*) Mainly natural.

16. Regeneration was entirely natural in *Ganjam* and *Lower Godavari.* In *Guntur*, natural regeneration of *Hardwickia binata* is excellent in the areas closed to grazing but in open areas it is nil. *Chloroxylon swietenia* is also regenerating excellently in closed areas. In *Nellore*, reproduction was entirely natural in working plan areas. Coppice reproduction was good in all felled coupes.

(*b*) Mainly artificial.

17. In *Lower Godavari* casuarina planting in Kandikuppa reserve started in 1923-24 was continued. Sixty-five acres were planted on contract at Rs. 25 per 1,000 established plants delivered after one year. The planting distance 7 feet × 7 feet. The total area planted up so far is 150 acres. The plantations are reported to be thriving; casualties are replaced by subordinates free of cost.

(*c*) Afforestation.

18. Nil.

(iii) *Plantations and other forms of regeneration not under working plans or schemes.*

19. *Ganjam.*—Red sanders planted in September 1923 in ten cents of Napier's Park reserve are thriving. *Vizagapatam.*—The orange tope Busilikota is in good condition and the produce is leased out every year. *Upper Godavari.*—No new taungya operations were carried out in the teak bearing areas. The 20 acres

taungya podu in Rekapalli Hill reserve (non-teak area) selected for teak taungya last year and handed over to the hillmen for raising a *jonna* crop was taken back from the Koyas in the latter part of the year under report and the regrowth cut back and burnt at a cost of Rs. 35 (which appears to be an extravagant figure). The area was to be ploughed and sown with teak seeds in the rains of 1926. Another area of 22 acres was selected during the year under report and the right to fell and remove marketable timber was sold for Rs. 2,350. This area will be given to Koyas for raising field crop in January 1927. The results of the 1920–21 and 1921–22 taungya in Cherla and Bhadrachallam ranges are reported to be poor. In Rekapalli reserve 1920-21 taungya, 8 acres, it is reported that there are fairly large number of teak coppice shoots with an average height of 25 feet, a statement which does not adequately describe the results of the taungya work. Coupe I, Mettappalli reserve in Pulusumamidi Range, is said to be fully stocked with seedlings and in good condition. Kansalur reserve 1920–21, taungya coupe I, contains a full stock of seedlings with an average height 14 feet 6 inches. It has been found necessary to form a nursery in order to replace casualties in coupe II with stumped plants. *Lower Godavari.*—Two areas, of 6 and 7 acres respectively, in Bedadavole reserve of the Polavaram Range, were handed over to Koyas for poduing with a view to raise teak in conjunction with an agricultural crop. The areas were felled and sown with *kondajonna*. The first year's crop was poor. The areas will be again cultivated during the current year and again next year and after the crop is harvested teak stumps will be put out. For obtaining the necessary stumps, nurseries have been opened. *Guntur.*—Seeds of *Anogeissus latifolia*, *Chloroxylon swietenia*, *Melia azadirachta*, *Hardwickia binata* and *Albizzia lebbek* were sown broadcast in prepared patches in some of the felled coupes of the previous year. These patches were about 15 feet in diameter and there were about 40 patches to each coupe of 50 acres. In many cases, an excellent crop of seedlings came up and were looking well at the end of the year (and afterwards). It has been interesting to note, in the Kondapalli reserve, the very promising results obtained with *Hardwickia*, which had not, as is customary with the natural regeneration of this species, died back in the hot weather. The patches contained an extravagant number of seedlings (up to 126,000 per acre) just before the break of the 1926 rains. If this class of work can be done at moderate cost (including some tending) it is well worth following up as the value of the forest will be increased very considerably. *Nellore.*—Kollurpad in the Kavali Range is the only plantation in the district and contains the following species: —*Albizzia lebbek*, *Cassia siamea*, *Neem Pterocarpus santalinus*, *Hardwickia binata*, *Chloroxylon swietenia*, *etc.*

Clear fellings.—Upper Godavari—Pulusumamidi Range.—The growth of teak in the clear-felled coupes I and II of the Rekapalli Hill reserve was very good; the height of the highest coppice shoot being 17 feet and 12 feet after three and two years respectively. In coupe III teak seeds, broadcasted in March 1925, germinated on 27th May 1925, the average height of the seedlings being nine inches to one foot at the end of the year. Marrigudem Range.—In the regeneration patches in coupes I, II and III of Ramachandram reserve, the stocking of teak seedlings was good, while the coppice growth on the whole area is satisfactory. Most of the 600 teak stumps planted in July 1924 in coupe I are thriving well, the height of the average plant on 31st March 1926 being one foot nine inches indicating a slow rate of growth. In coupe III the damaged coppice shoots of teak, *maddi* and *yegisi*, damaged by fire, were cut back. In coupe IV the teak broadcasted in burnt patches in April 1925 germinated in July and August 1925. All the seedlings which germinated were suppressed and smothered by a rank growth of weeds for want of tending. The coppice growth in the area was satisfactory, the average height being eight feet on 15th May 1926. Coupe V was worked under a revised system, under which the rubbish was burnt all over the coupe instead of in patches, and teak seeds broadcasted. The regeneration can hardly be noticed owing to the rank growth of weeds and creepers. The coppice growth is satisfactory over the entire area. Coupe I, Sitarampuram reserve, was worked on the same lines as coupe V of Ramachandram reserve and teak seeds were broadcasted in May 1925 (which is of course too late). Very few seeds germinated, what there were averaged four inches in height at the end of the year. Bhadrachallam Range.—Seedlings of teak, *maddi* and *yegisi*, in coupes I, II and III of the Tunikicheruvu reserve accidentally burnt, were cut back in May and June 1925 at a cost of Rs. 10. The cut-back plants coppiced vigorously and their average height was four feet. In the clear-felled coupes of Tunikicheruvu and Dummugudem reserves, the following are the measurements of coppice shoots :—

Number of coupe.		Teak average height. FEET	Stocking.
Coupe I Tunikicheruvu felled in	1921–22.	20	Very well stocked on the south side; north side fairly stocked.
,, II Do.	1922–23.	20	Do.
,, III Do.	1923–24.	18	Stocking irregular.
,, IV Do.	1924–25.	15	Do.
,, V Do.	1925–26.	10	Well stocked.
,, VI Do.	1926–27.	2	Do.
,, I Dummugudem felled in	1925–26.	10	Do.
,, II Do.	1926–27.	2	Do.

(iv) *Tending.*

20. *Ganjam.*—Cleanings in the Plains Sal Timber Working Circle regenerated areas were undertaken at the age of nine months.

Vizagapatam.—Weeding in the regeneration area in the Busilikota plateau was done by the settlers.

Lower Godavari.—In the timber coupes of Kopalli and Bedadavole reserves climber cutting and girdling of soft wooded trees and in the Kogida and Devancheruvu reserves of the Rajahmundry Range and the Tirumalayapalem reserve of the Gokavaram Range climber and creeper cutting were carried out.

Nellore.—Lopping and topping of inferior trees interfering with the growth of superior species in the Kollurpad plantation were concluded at a cost of Rs. 13-12-0. The total cost of this operation during 1924-25 and 1925-26 amounted to Rs. 50-5-3 for 162 acres. All the felled coupes in the district were fenced by contractors against trespass by cattle; but it has been observed that the protection so afforded does not amount to very much, the fencing being broken down, and even set fire to, in order that cattle may have ingress.

(v) *General.*

21. *Vizagapatam.*—Sandal was sown in a plot of 5 acres in the Sanivaram reserve of the Narasapatam range with success. There are at present 20 acres so treated with 1,000 plants 3 feet to 8 feet in height. In the Kondasantha and Nathavaram rest-houses there are 17 and 14 plants surviving. Palmyra seed was sown around felled coupes in Peddapalli forests and the eight reserves in Sarvasiddhi Range in Golgonda taluk, 40 per cent germinated, of which ten per cent was damaged by wild pigs. Sporadic flowering of bamboo was observed in Antikonda, Burna and Kadagandi reserves. Divi divi was sown around the rest-houses in Sarvasiddhi Range; 50 per cent germinated. *Lower Godavari Anogeissus* and Satinwood seeded fairly well. The tamarind crop was, if anything, below average.

Guntur.—Sandal introduced on the Kondapalli hill, apparently about 1914, though all history of the work is lost, has done very well. Some planted on the edge of a small tank were flooded for some days in the cyclone of 1925 and have died. A tree of 12 inches girth proved to have no heart wood. The systematic putting out of sandal in this reserve will be prescribed in the working plan under preparation.

SECTION 2.—TENDING OF THE GROWING STOCK.

22. *Ganjam.*—Cleanings were done in the clear-felled coupes of the previous year in both the felling series at an average cost of Rs. 2-8-0 per acre. Cutting back switch growth in coupe VII,

Plains Sal Timber Working Circle of Kriamba reserve, 40 acres, at a cost of Rs. 25 and clearing, heaping and burning refuse in coupe VII of the Plains Sal Timber Working Circle, Brahmanasai reserve, 60 acres, at a cost of Rs. 373-12-0 were done. The latter work is incomplete. Cutting back all growth in Rambha Ravine Working Circle coupe III of 63 acres was done at a cost of Rs. 62. First cleaning of Rambha Ravine Working Circle coupe III of 67 acres was done at a cost of Rs. 163-6-0 and clearing, heaping and burning refuse stuff over an area of 63 acres in Rambha Ravine Working Circle coupe III at a cost of Rs. 253.

Thinnings.—Thinnings were done in Chendragiri coupe II, Plains Sal Timber Working Circle, over 140 acres at Rs. 2-12-0 per acre. The thinned stuff in 31 acres was sold for Rs. 31.

Creeper cutting.—Creeper cutting in Chendragiri coupe II (Plains Sal Timber Working Circle) was done in Kukuluba Range at a cost of Rs. 1-11-4 per acre when completed.

Thinnings—Plains Sal Pole Working Circle.—Two hundred and seventy-two acres at a cost of Rs. 459-1-0 in Russellkonda Range and 237·50 acres at a cost of Rs. 278-4-0 in Buguda Range and 113 acres at a cost of Rs. 214-10-0 in Bontha Range were thinned during the year. The poles were sold for Rs. 360 against Rs. 952 spent. Thinnings in this working circle had been allowed to fall into arrears as it was considered that the produce removed from the young coupes would not be saleable. The sales of poles during the year under report fetched a comparatively low amount, the material obtained being of inferior quality. There are still arrears to be made up and steps are being taken to do so.

Thinnings in the Ravine Working Circle.—Two sample plots of half an acre each were laid out in Rambha Ravine coupe II formed in 1920–21 and experiments to determine the best way of thinnings and cleanings were carried out.

The first sample plot did not contain very much sal. It presented a dense mass of specimens of all kinds. All inferior species leaving timber species were removed. The cost of the operation is reported to have been Rs. 1-10-0 per acre. When cleaned the plots presented rather an open appearance with the species which had been left in groups and an enumeration carried out gave the following result:—

28·32 per cent	...	...	*Shorea robusta.*
38·11 ,,	...	...	*Pterocarpus marsupium.*
1·40 ,,	...	...	*Eugenia jambolana*
3·50 ,,	...	...	*Lagerstrœmia arborea.*
1·75 ,,	...	...	*Gmelina arborea.*
1·40 ,,	...	...	*Schleichera trijuga.*
7·00 ,,	...	...	*Grewia tiliæfolia.*
1·40 ,,	...	...	*Bursera serrata.*

The second sample plot carried a very fine stand of sal. In this area the inferior species were removed and this was followed by a light thinning. In this operation the sal was favoured, species interfering with the sal being removed. While carrying out this operation all the "straight coppice" was, so far as possible, removed and the remaining switches were thinned. The thinning was carried out very lightly as it is not yet certain to what extent the remaining sal are likely to suffer from bending. The thinning was made especially light where the "switches" were whippy and also where creepers had been much in evidence. In the latter case it was not possible to remove from the crown all the creepers which tend to make the plant top-heavy and they have therefore to have the support of their neighbours till the creepers have died and the plant is firmer and more likely to be able to stand on its own. *Vizagapatam.*—Creeper cutting was done at a cost of Rs. 41 in 130 acres of Samaralli sal area. In all other places creeper cutting was done by beat subordinates free of cost. *Upper Godavari*—Improvement or regeneration fellings were made over 100 acres in Ramachendram reserve and 60 acres in Seeta-rampuram reserve of Marrigudem Range and 75 acres in Tunikicheruvu reserve and 116 acres in Dummagudem reserve of the Bhadrachallam Range, in areas stock-mapped in advance of clear fellings to favour teak. The operations consisted in cutting all climbers and to girdling of soft-wooded species and other useless species that interfere with the growth of the better ones. *Lower Godavari.*—In Yerraguntapalli of Ellore Range, 358 acres containing teak was climber-cut at a cost of 4 annas per acre and cleared and coppice shoots in 20 acres were thinned at a cost of Rs. 3 per acre.

CHAPTER IV.—EXPLOITATION.

(*a*) SYSTEM OF MANAGEMENT.

(1) *Major Produce.*

23. The different sylvicultural systems in force were—

Clear felling and regeneration of sal under uniform system.—Clear fellings were carried out in both the series of the Plains Sal Timber Working Circle as well as in the Ravine Working Circle.

Series I—Periodic Block I.—Brahmanasai coupe VII, Bontha Range (128 acres), was sold for Rs. 3,200 at Rs. 25 per acre for felling of the residual growth, after timber fit for the Russellkonda Saw Mill, viz., 4,556 cubic feet, had been extracted departmentally. In addition, the extraction of timber fit for the mill was taken up in Brahmanasai coupe VIII (allotted to 1926–27): 34,079 cubic feet were obtained, of which 17,078 cubic feet were carted to the mill

during the year. The extraction of timber fit for the mill was taken up in coupe IX as well. 39,157 cubic feet were obtained during the year, of which 2,351 cubic feet were carted to the mill.

Series II—Periodic Block I.—Kriamba coupe VII, Buguda Range (33 acres), was sold to a contractor for Rs. 1,596 at Rs. 42 per acre, after removal of the millable timber, for felling of the residual growth. The balance of timber fit for the mill, viz., 286 cubic feet, was carted to the mill. In addition extraction of timber fit for the mill was taken up in coupes VIII and IX to be clear felled in 1926–27 and 1927–28 respectively. Four thousand eight hundred and sixty cubic feet were obtained from coupe VIII and 4,645 cubic feet from coupe IX of which 1,412 and 1,256 cubic feet respectively were carted to the mill.

Ravine Working Circle.—Rambha Ravine coupe IV (32 acres) was sold to a contractor for clear felling for Rs. 384 at Rs. 12 per acre. The coupe sold in the previous year fetched only Rs. 5 per acre. Extraction of timber fit for the mill from Rambha Ravine compartments 7 and 8 was commenced in March 1926. Two thousand and seventy-seven cubic feet were obtained, of which 850 cubic feet were carted to the mill. The work was in progress.

Vizagapatam.—The growth in 14 acres of Chinnamangalapuram tope was clear-felled.

Upper Godavari.—Two coupes in the Marrigudem Range and two coupes in Bhadrachellam Range were clear felled. The saleable timber in these areas was extracted and carted to the river banks for sale. The financial results of the fellings are shown in the following statement:—

Name of range.	Name of reserved forest.	Area in acres.	Gross expenditure.	Gross revenue.	Net revenue per acre.
			RS.	RS.	RS.
Marrigudem ..	Seetharampuram ..	31	819	5,980	166
	Ramachendran ..	47	1,238	8,770	160
Bhadrachellam.	Dummugudem ..	69	1,919	9 620	112
	Tunikicheruvu ..	45	1,603	6,450	107

The yield of timber from the four coupes was 8,463, 7,605, 4,967 and 7,285 cubic feet in all, of which teak, the predominating factor, was 6,961, 5,235, 4,256 and 6,059 cubic feet respectively.

In addition to the above, portions of coupes of 1926–27 were also worked during the year.

Selection fellings—Ganjam.—Twenty-six thousand four hundred and seventy-six cubic feet were obtained from the Metrekia valley, of which 5,890 cubic feet were carted to the mill during the year. Extraction from this area is difficult, but it is hoped to make it easier

by the use of small specially designed bummers operated by buffaloes: a suitable design appears to have been evolved. Sixty-four thousand and sixty-eight cubic feet were obtained from selection fellings in the Baiballi reserve, of which 21,020 cubic feet were carted to the mill. It is unfortunate that a large proportion of the fine timber from this area has been found to be unsound, the unsoundness being, for the most part, only detectable after the saw has gone through the log. *Vizagapatam.*—Sal trees of three feet and above in girth were removed from the Samaralli reserve under the selection system. *Guntur.*—Selection fellings were confined to the Takkellapad reserve in Sattenapalli Range, a very small area.

Improvement fellings—Ganjam.—Mature trees fit for the mill were extracted from the Baniakoradabadi block (the principle of 'improvement' not always perhaps being borne in mind). Fourteen thousand eight hundred and nine cubic feet were obtained, of which 5,305 cubic feet were carted to the mill. From the Kanubondho and Bansakota blocks 11,751 cubic feet were obtained, of which 4,557 cubic feet were carted to the mill. *Series II—Periodic Blocks III and IV.*—The extraction of mature trees from Bolasi block A yielded 1,655 cubic feet of which 978 cubic feet were carted to the mill. *Upper Godavari.*—Cutting climbers and girdling soft wooded and useless species, which hinder the growth of the valuable species, were carried out in the following reserved forest at the cost shown against each :—

Range.	Name of reserved forest.	Area in acres	Cost
			RS.
Marrigudem	Seetharamapuram	60	60
	Ramachendram	100	100
Bhadrachallam	Dummugudem	116	116
	Tunikicheruvu	75	75
	Total ..	351	351

Simple coppice and coppice with standards.—The fuel coupes in all divisions were worked under the simple coppice system. In the fuel felling series under the Repalle mangrove working plan in Guntur 'coppice with standards' was in force until May 1925, after which it was discontinued. In *Lower Godavari* the two timber coupes of Bedadavole and Koppalli reserves in Polavaram Range were also treated under this system. Forty acres in coupe III and 80 acres in coupe IV of Bedadavole reserve and 4 3 acres in Kopalli reserve were clear-felled through the agency of contractors. All the saleable timber was extracted and the unsaleable logs and refuse were burnt and reburnt. The resultant coppice shoots of teak, *Terminalia* and *Pterocarpus* and other important species were tended departmentally by cleaning and climber cutting at a cost

of Rs. 2 and As. 4 per acre respectively. The coupes fetched Rs. 1,385 in all or Rs. 11-2-8 per acre.

Unregulated fellings.—These were as usual confined to unreserved lands and to the Rampa forests. In *Upper Godavari* these fellings were confined to unreserved lands under the control of the Forest Department and were carried out departmentally in a portion of coupe 5 Nugur range and in coupe 8 Cherla range under the schemes approved by the Conservator. Trees of valuable species of and above 3 ft. in girth at breast height were marked. One thousand and eighty logs of 20,036 c.ft. were extracted from the Nugur range and 261 logs of 2,757 c.ft. from the Cherla range at an aggregate cost of Rs. 1,837. The timber extracted from the Cherla range was sold for Rs. 2,500 after carting it to the river bank. That extracted from the Nugur range was not sold as a portion of the logs extracted were not carted to the river bank for want of transport facilities. The timber was however sold *in situ* in the year 1926-27 for Rs. 17,125. Yepi coupes IV and V in the unreserve working circle of the Bhadrachellam range were leased out to a contractor for Rs. 2,887-8-0. The number of trees of and above 5 ft. in girth marked for extraction was 264 and the average net revenue realized per tree was Rs. 10-15-0.

Taungya.—*Upper Godavari.*—The right to fell and remove marketable timber over an area of 22 acres (podu coupe II) in non-teak areas of Rekapalli Hill reserve was sold for Rs. 2,350. This area will be handed over to the Koyas or Reddis in January 1927 for raising field crops and taken back in January 1928 for regenerative measures.

(ii) *Minor produce.*

24. *Bamboos and minor produce.*—Three methods of extraction were in vogue, viz., departmental collection, leasing the right of collection and collection on permits. The first method was resorted to only to meet the petty requirements of the department for repairs to rest-houses, etc. The produce was generally leased to contractors except in the Sriharikota reserve of the *Nellore* district, where minor forest produce was collected departmentally by the Yanadis. The right to collect seigniorage from purchasers at shandies for minor produce purchased from hill tribes was leased in *Vizagapatam.* Collection on permits was allowed from the Agency tracts in *Lower Godavari* and from some of the forests in *Upper Godavari* which were not leased out.

Strychnos Nux-vomica.—In *Upper Godavari* the produce could not be sold for want of demand. Rupees 690 was realized in *Lower Godavari* by leasing the right of collection in the whole division for one year.

There was no demand for *Cassia auriculata* bark in *Vizagapatam* and *Upper Godavari*. *Cassia fistula* bark was leased out in *Vizagapatam*. In *Lower Godavari Cassia auriculata* was leased for one year for Rs. 4,910 and *Cassia fistula* for Rs. 4,610. In *Nellore Cassia auriculata* was sold on a three years lease in all the ranges except Satyavedu. In Satyavedu range, for want of proper bids, it was sold for one year. Manure leaf, minerals, thatch grass and stone were allowed to be removed on permits as usual.

Fodder grass and hay—Ganjam.—The right to cut grass in the Napier's Park reserve was sold for Rs. 20. The Revenue Department realized Rs. 12 from sale of fodder grass in unreserves. In *Lower Godavari* the removal of fodder and thatch grass was allowed on permits as usual from all the reserves except Coringa, Coringa Extension and Kandikuppa reserves in which the right was leased. There were no removals of thatch and fodder grass during the year. The right to cut and remove fodder grass from the Cantonment ground at Samalkot is on a 30 year lease granted by the Revenue Department. Rupees 1,200 was credited to Forest department on this account during the year as usual.

(*b*) Agency of Exploitation.

(i) *Departmental agency.*

25. The outturn of major produce by departmental agency is compared with that of last year in the following abstract :—

Year.	Timber in thousands of cubic feet.	Fuel in thousands of cubic feet.	Bamboos.	Minor produce.
			RS.	RS.
1924-25	362	168	399	26,930
1925-26	281	55	300	16,981

The quantity of major produce exploited was 4·4 per cent of the total outturn and consisted mainly of the timber felled in *Ganjam* for the saw mill and the timber obtained from the clear fellings carried out in *Upper Godavari*. The decrease in timber occurred in *Ganjam* and was due to the fact that no fellings were carried out for about seven months owing to the suspension of work in the Saw mill. The same cause also affected the yield of fuel. The decrease under "bamboos" was due to less number of bamboos used for departmental buildings, etc, in *Upper Godavari*. Under "Minor produce" there was decrease in the produce collected in the Sriharikota reserve in *Nellore* due to poorer crops and also the revenue of 1924-25 was inflated by Rs 7,410 (value of 399 candies of Nux-vomica which remained unsold in 1923-24 and was sold in 1924-25).

(ii) *By Purchasers.*

26. The following abstract compares the quantity of major produce and the value of minor produce removed by purchasers during the year with those of the preceding year :—

Year.	Timber in thousands of cubic feet.	Fuel in thousands of cubic feet.	Bamboos.	Grass and grazing.	Other minor produce.
			RS.	RS.	RS.
1924–25	896	4,404	1,20,879	2.13,276	1,23,298
1925–26	831	6,289	1,54,111	2,16,009	1,25,134

The decrease in 'timber' was marked in *Guntur* and was due to less removals of timber from unreserves. The increse under 'fuel' was due to larger quantities extracted from coupes in *Lower Godavari*, to the addition of Satyavedu range and to greater number of coupes sold in *Nellore.* The increase under 'bamboos' was due to better prices realised from coupes in *Ganjam* and *Upper Godavari* and to larger quantities removed from Rampa in *Lower Godavari.* Under 'grazing' there was increase. It is attributed in *Upper Godavari* to the absence of cattle disease and the correct licensing of all cattle. (It is perhaps doubtful if licensing is now correct for it is unlikely that the Reddis and Koyas, allowed to graze free, really own 53,000 head of cattle.) In *Lower Godavari* the graziers of Ungatur and surrounding villages of Ellore range who hitherto used to take their sheep to the unreserves of Yernagudem and Kamavarapukota, had to resort to reserved forests as heavy rains prevented them from leaving their villages this year. Further in Chintalapudi section of the same range there was a rush of cattle from Bhimavaram and Tanuku taluks. These accounted for the increase of grazing revenue in *Lower Godavari.* The increase under 'minor produce' was due to removal of larger quantities from Rampa in *Lower Godavari.*

(iii) *and* (iv) *By right-holder and under privileges and free grantees.*

27. The quantity and value of the produce removed under this head were as follows :—

—	Timber in thousands of cubic feet.	Value.	Fuel in thousands of cubic feet.	Value.	Bamboos.	Grazing.	Other produce.	Total outturn.
		RS.		RS.	RS.	RS.	RS.	RS.
Right holders .	10	625	..	..	150	271	500	1.546
Free grantees ..	89	7,966	46	960	585	11,597	718	21,826

Rights.—The Khonds of Chokkapad Khandam have a right to free removal of timber, etc., for their domestic and agricultural

purposes and free grazing of cattle. They were allowed to enjoy their rights during the year.

Free grants.—Free grants were made throughout the circle chiefly for rebuilding houses destroyed by fire. A larger number of free grants than last year were made for the construction of huts in the criminal settlement at Kavali in *Nellore* district. Free grazing to the extent of Rs. 824 was allowed in the Dharakonda and Sanivaram reserves in *Vizagapatam* to the inhabitants of the neighbouring villages for services rendered by them in fire protection, etc. The estimated value of all grants was Rs. 21,826 against Rs. 22,348 in the previous year. Free grants made in connexion with the cyclone relief in *Guntur* have not been included as complete details are not available.

It has been necessary to call attention to irregularities in the making of free grants.

(c) OUTTURN AND SOURCES OF FOREST PRODUCE.

28. The total outturn from all agencies is compared with similar details of last year in the following statement:—

Year.	Timber in thousands of cubic feet.	Fuel in thousands of cubic feet.	Bamboos.	Grass value of minor forest produce including grass and grazing.
			RS.	RS.
1924-25	1,390	4,616	1,22,292	3,76,017
1925-26	1,211	6,390	1,55,146	3,71,210

The total number of cattle for which grazing was provided was 628,497 against 585,023 in the previous year.

CHAPTER V.

FINANCIAL RESULTS.

29. The financial position of the year is compared with that of the previous year and the average of the preceding quinquennium in the following abstract:—

—	1925-26.	1924-25.	Average of the preceding quinquennium.
	RS.	RS.	RS.
Revenue	10,37,364	10,69,452	9,49,410
Expenditure.			
B. Conservancy and works .. .. .. / 52-A. Capital outlay..	1,83,077	2,00,675	2,64,529
C. Establishments	4,78,652	5,08,689	5,25,284
Total ..	6,61,729	7,09,364	7,89,813
Surplus ..	+ 3,75,635	+ 3,60,088	+ 1,59,597

The financial results of the year show a surplus of Rs. 3,75,635 against Rs. 3,60,088 of the previous year.

Forty-one per cent of the revenue was derived from major produce, 29 per cent from minor produce, 20 per cent from grass and grazing and 10 per cent from miscellaneous items. Of the expenditure 19 per cent was incurred on exploitation, 16 per cent on upkeep and improvement and 65 per cent on miscellaneous items. The revenue outstanding at the end of the year was Rs. 68,172, of which Rs. 25,159 fell due within the year. This includes Rs. 13,774-8-0 due from Messrs. Parry & Co., being the value of 55,098 cubic feet of timber at Annas 4 per cubic foot supplied to the saw mill. The important variations under 'Receipts' and 'Expenditure' are explained below:—

RECEIPTS.

(i) *By Departmental Agency.*

Timber.— — Rupees 35,323. Due to the payment in the previous year by Messrs. Parry & Co. of the value of timber supplied to the Russellkonda Saw mill during the two years 1922–23 and 1923–24 to the work in the saw mill having been suspended for seven months in 1925–26, and to the non-sale of the timber extracted from unreserve coupe V of Nugur Range during the year as all the logs were not extracted in time.

Grass and other minor produce.—Rupees 11,262. Due to fall in prices of produce in 1925–26 and to the figure of 1924–25 being inflated by an item of Rs. 8,375 the value of minor forest produce collected in 1923–24 but sold in 1924–25 in *Nellore.*

(ii) *By Purchasers.*

Timber—Forest Department.— — Rupees 11,506. Due in *Ganjam* to lesser quantity of standing growth sold to contractors, in *Lower Godavari* to less removals on permits from Rampa, and in *Guntur* to less removals from darkhast lands in 1925–26 and to the fact that in 1924–25 much revenue was realized from sale of tree growth in the disforested coastal reserves.

Fuel.— + Rupees 38,264. Due to better prices realised for coupes in *Ganjam*, *Vizagapatam*, *Lower Godavari* and *Guntur* partly counterbalanced by a fall in *Nellore* due to the reason that in 1924–25 the remaining casuarina plantations had been sold.

Bamboos.— + Rupees 32,412. Due to better prices realized for bamboos in *Upper Godavari* and to larger removals from Rampa, *Lower Godavari.*

Minor produce.— + Rupees 18,922. Due to larger removals from Rampa in *Lower Godavari* and to the sale of *rela* bark in *Vizagapatam.*

Revenue Department.—The variations under all the sub-heads represent collections by the Revenue Department.

(*d*) *Profits from Government Commercial undertakings.*— + Rupees 15,829. Due to no adjustment under this sub-head in 1924–25.

Other sources.— — Rupees 13,598. Due to the reason that the actuals of 1924–25 included revenue realised from the initial payments made for leased areas of coastal reserves disforested in *Guntur* and the sale of barbed wire in *Ganjam*.

Recoveries of investments in Government Commercial undertakings.— — Rupees 44,720. Adjusted by the Accountant-General. No details are available.

EXPENDITURE.

Under B. Conservancy and Works there was decreased expenditure of Rs. 20,713 accounted for mainly by less expenditure on timber exploitation and carting to the saw mill at Russellkonda as the mill work was suspended for seven months.

Under 52-A. Capital outlay there was increased expenditure of Rs. 3,115 made up of an item of Rs 13,927 adjusted by the Accountant-General under purchase of stores, tools and plant, increased expenditure on roads and buildings (Rs. 12,567) and under other sub-heads (Rs. 2,592) counterbalanced by a fall under 'Investments in Government Commercial undertakings' (Rs. 25,971) as no amount was debited to this sub-head in 1925–26.

The expenditure under C. Establishments showed a decrease of Rs. 30,037 due chiefly to a junior Conservator being in charge of the circle and to fewer officers being employed in *Ganjam*, *Guntur* and *Lower Godavari*.

CHAPTER VI.—RESEARCH AND EXPERIMENTS.

(*a*) RESEARCH.

30. Nil.

(*b*) EXPERIMENTS.

31. The experiment in *Upper Godavari* to find out the rate of girth increment on individual satinwood trees in a mixed crop, and in a pure crop referred to in the report of last year was continued. The next measurements are due in 1927. *Guntur.*—The recording of measurement of girths of *mada* (*avicennia*) trees in the sample plots in Muthayapalem reserved forest were neglected. In the experimental plot on the Vinukonda-Karempudi road half the area was ploughed and seeds of *Eugenia jambolana*, *Hardwickia binata* and *Melia indica* were sown. *Hardwickia* germinated well in the ploughed area. The germination in the unploughed area was not

so good. *Experimental plot in Konanki reserved forest.*—The number of plants on 30th January 1926 were—

	Ploughed.	Unploughed.
Nim	2,648	2,137
Yepi	4,687	1,449

Nellore.—Sandal sowings were done in parts but without success. The failure is attributed to inferior seed. In Satyavedu range of the old Chingleput district the dibbling of sandal seed showed encouraging results. About 600 to 700 saplings are reported to thrive in the Kambakkam plateau, the result of sowings started here from 1917, the tallest of which is 18 feet high and 8 inches in girth.

CHAPTER VII.—ADMINISTRATION.

32. *Tours.*—Mr. Barry was in charge of the circle from 1st April 1925 to 7th May 1925 and Mr. Minchin for the rest of the year. Owing to illness Mr. Minchin was precluded from touring from November until he went on leave in April 1926, this resulting in the touring of the Conservator falling short of the prescribed minimum.

All the District Forest Officers except *Vizagapatam* did the prescribed minimum of touring. The shortage in *Vizagapatam* is ascribed to the ill-health of Mr. Woodhouse Adolphus.

The Hon'ble the Home Member and the Finance Member of the Government of Madras visited the *Ganjam* division in November 1925 and discussed with the Chief Conservator of Forests and the Conservator of Forests, First Circle, the prospects of the Ghumsur forests and questions relating to the working of the Russellkonda Saw Mill. The Chief Forest Engineer visited the *Ganjam* division in March 1926 to examine the possibility of reducing the cost of transport of timber to the mill.

33. *Inspections.*—The Conservator inspected the District Forest offices of *Ganjam* and *Vizagapatam*. The results were satisfactory. Mr. Minchin inspected the forests in *Ganjam* and *Lower Godavari*.

34. *List of offices audited.*—The accounts of all District Forest offices were audited by the Local Fund staff of the Accountant-General's office and the results were reported satisfactory.

35. *Vernacular Training School.*—The school was held in *Ganjam* and lasted from 6th January to 18th June 1926. The school started with 38 students of whom 4 were from Bihar and Orissa and 4 from the Feudatory States of Bihar and Orissa. The health of the instructors and students was good. The instruction and discipline were satisfactory.

36. *Health of the establishment including an account of measures of sanitation and casualties.*—The subordinates in Chokkapad Agency, Kukuluba, Bontha and Pondakhol ranges in *Ganjam* suffered from malaria as usual. The health of the establishment in *Vizagapatam* was good except in the Agency beats of Narasapatam and Palakonda ranges. Medicines were supplied to the Range officers for free distribution to subordinates. The health of *Upper Godavari* was bad as usual. One ranger, one range clerk and one forester suffered from blackwater fever and the forester eventually became a victim to it. Two forest guards died of malaria. Six foresters, ten forest guards, three clerks and three peons went on sick leave during the year. *Lower Godavari.*—Health not satisfactory. One ranger, seven foresters, three forest guards and two clerks and one peon and a tanadar went on sick leave and two Tanadars died. The agency parts of Peddapur range and Papikonda hills were particularly unhealthy and many subordinates stationed or touring in these parts suffered from malaria. *Nellore.*—Sriharikota range continued unhealthy. In Udayagiri town of the Udayagiri range there prevailed a virulent type of malaria and many subordinates including the range officer fell ill frequently. The malarial expert opines that nearly 90 per cent of the population of Udayagiri are malaria infected. The health of the establishment in *Guntur* is reported to have been satisfactory.

One forester and one forest guard in *Guntur* were murdered. A compassionate gratuity of Rs. 216 was sanctioned by Government for payment to the widow of the deceased forest guard.

Nellore.—Pensions were granted to the dependants of the two forest guards mentioned in the last year's report as having been murdered while in the discharge of their duties. One forester died of typhoid, two forest guards died of fever and other causes.

CHAPTER VIII.—GENERAL.

37. *Formation and management of panchayats (to include the Forest Village system).*—*Lower Godavari*—2,252 acres in Kandikuppa reserve and 96 acres in Murari reserve are managed by panchayats on a co-operative basis under the control of the District Labour officer, the former by four co-operative societies and the latter by one society. Their management are reported satisfactory. Chintalapudi and Velagalapalli reserves of the Ellore range are under panchayat management with effect from 1st July 1924. During the year under report the Forest Panchayat officer had under consideration the formation of panchayats for the following reserves:—

Polavaram range ...	... Jeelugumilli, Barrinkalapadu, Darbhagudem and Extension. It seems farcical to form panchayats in the agency.
Rajahmundry range	... Kogida, Murari and Rameswaram.

Guntur.—One new panchayat was formed. All the panchayats were under the control of Forest Panchayat officer. *Nellore.*—No new panchayats were formed. The three existing panchayats are reported to have worked fairly satisfactorily, except that in Kavali the bad protection and other irregularities noticed are reported to have been taken to the notice of the Revenue Divisional officer for necessary action. *Vizagapatam.*—Efforts are reported to have been made to form panchayats for the reserves classed II, but without success. These reserves have subsequently been transferred to class I. The Forest Panchayat staff are engaged in attempts to form panchayats for the class III reserves—Gokivada, Kalavalapalli, Ramballi, Panchadarla and Vemagiri reserves.

The Forest Village system is not in force in this Circle.

38. *Conferences and meetings.*—Opportunity was fully utilized in *Nellore* by all departmental officers during tours to hear complaints from ryots and to remedy them, as far as possible. Good propaganda work was done to popularize the long lease system of kanchas to a representative panchayat. Disappointed kancha profiteers are said to have continued to harass the department with cowardly anonymous and pseudonymous petitions, for which the district is claimed to be notorious.

39. *Measures for improving local supplies and facilities (includes water-supply, manure leaves, etc.).*—The wants of people in the matter of fuel and small timber were met in all divisions and there were no complaints. There is no demand for manure leaf in the circle. In *Vizagapatam* a channel three feet wide was dug to drain the surplus water in the Amma tank in Palakonda Range. Water being generally available in the reserves no improvements were found necessary elsewhere. In *Upper Godavari* a reservoir by constructing a masonry wall across the Mamidithogu vagu in the Cherla reserve was formed at a cost of Rs. 190 for storage of water, as there was difficulty during summer for watering cattle grazing in the reserve. In *Guntur* Rs. 389 were spent on the improvements of sources of water-supply. Liberal encouragement was given to the philanthropic public to repair existing kuntas and to construct new tanks. Permission was accorded to repair ten existing kuntas and to dig two new kuntas. *Nellore.*—Ponds and tanks in grazing blocks were repaired departmentally at a cost of Rs. 806 as against Rs. 250 last year. Four ponds were repaired by kanchadars at an estimated cost of Rs. 400. Permission was freely given to kanchadars to undertake repairs to tanks in reserves at their own cost. On the application of kanchadars *Kampa* (thorns) was allowed to be removed free by villagers for their actual requirements.

40. *Timber Transit Rules.*—The rules are said to have worked satisfactorily in all the division.

41. *Jungle tribes—Ganjam.*—The department continued to be on good terms with the Kondhs. The Kondhs elsewhere other than in Chokkapad were granted concessions in the way of building materials, etc., and free grazing for services rendered by them in general and fire protection of the forests. *Vizagapatam.*—The hill tribes availed themselves of the privileges conferred upon them without complaint and without abuse of rules. 115 acres of land was given for cultivation, free of cost, on annual permits, to 23 families at five acres each in the Busilikota settlement as a means of readily procuring labour in the interior of Sanivaram reserved forest and help during the fire season. *Upper* and *Lower Godavari.*—The Koyas and Reddis continued to be useful. They were employed on all departmental operations. They were granted rewards in addition to wages, for the successful protection of the forests from fire and were also allowed the concession of free grazing in reserves and free removal of minor forest produce and fuel and timber except teak in unreserves for their domestic and agricultural requirements. They had in addition to the above the privilege of podu cultivation in the unreserves of Bhadrachallam taluk in *Upper Godavari.* It is reported that the Koyas in the Nugur taluk resent this in that they enjoy no such privilege. It is even said that podu elsewhere is an 'Eye sore' to them, though it is more than doubtful if they resent it on aesthetic grounds and that they are much discontented. The absence of population in the heart of Rekapalli and Marrigura hill reserves, the District Forest Officer reports, is a serious handicap to the development of these forests. The settlers in the Agency tracts of *Lower Godavari* rendered help to the department in return for which they were allowed to graze their cattle at a concessional rate of one anna per cow or buffalo. They were also given rewards for successful fire protection work. *Nellore.*—The Yanadis in Sriharikota range numbering 248 were as usual employed on the collection of minor forest produce and granted rewards in addition to wages. The rewards are granted in the shape of rice, cloth and cash, a part of the cash being deposited in the savings bank account of the Post office from which withdrawals are allowed only on urgent occasions such as marriages, sickness, etc. This system is intended to keep them out of the clutches of the money lender and the benefit of it is reported to be appreciated. There are in all 64 accounts open Rs. 820 representing the joint savings.

42. *Mining and quarrying.* —Rupees 7 were realized for quarrying rough stones from reserves in *Lower Godavari.* In *Nellore* the mica mining business continued in some of the reserves of *Nellore* and Rapur Ranges under the control of the Revenue department.

43. *Live-stock—Elephants.*—The baggage elephant Kapila was maintained in Upper Godavari. The tumour on the left foreleg

disappeared through timely treatment. She maintained fairly good health (and is since deceased).

Other animals.—There were four pairs of buffaloes in *Ganjam* at the commencement of the year. Seven pairs were purchased during the year. One buffalo died and was written off leaving a balance of 10½ pairs at the close of the year. In *Nellore* one buffalo was maintained.

44. *Veterinary establishment.*—Nil.

45. *Wild animals.*—The presence of man-eating tigers generally interfered with the progress of timber operations, fire protection, etc., in Kukuluba and Bontha ranges. The fear of man eating tigers is reported to be very real. The Chief Conservator of Forests sanctioned the supply of eight guns in addition to the four already supplied last year for use by the subordinates of Bontha and Kukuluba ranges as a protection against wild animals.

A rogue elephant pulled a villager out of the machan from which he was guarding his crop and killed him within two furlongs of Gerada rest-house. This elephant was destroyed by Mr. Minchin, Conservator of Forests, in October 1925.

46. *Civil suits—Lower Godavari.*—The two suits referred to in the last year's report remained undecided. It is reported that they have since been disposed of in favour of Government. One contractor has filed a civil suit against Government in respect of the value of *naramamidi* bark alleged to have been wrongly restrained by departmental officers. The cost sought to be recovered is Rs. 1,676-6-9. *Nellore.*—The two suits filed by late forest contractor B. Chenchurama Nayudu referred to in the last year's report are still pending in the Sub-Judge's Court, *Nellore*. A civil suit against a Ranger for acts done by him in his official capacity brought by a discontented kanchadar is *sub-judice* in the Sub-Judge's Court, *Nellore.*

47. *Control of unreserved lands by the Forest department—Ganjam.*—The Revenue department has control and management of the tree growth and is primarily responsible for its protection. The Forest department is consulted in the disposal of valuable tree growth on bunjar lands. Trees fit for the mill are being extracted and the remaining growth is sold by the Forest department in cases where the applicants are unable to pay the tree valuation. The land when cleared of growth is disposed of by the Revenue Department. In *Upper Godavari* the unreserves are under the control of the Forest department and the local requirements are met from those lands. In *Lower Godavari* the control generally rests with the Revenue department but some of the unreserved lands in the Agency portions of Yellavaram, Chodavaram and Polavaram divisions are under the control of the Forest department. Here,

however, there is some difference of opinion as to which agency really is responsible and the matter is being looked into. The produce from unreserves both in the agency and in the non-agency portions is removed on permits issued mostly by the Forest department and in some instances by the Revenue department also. But the minor produce in the unreserved lands is being disposed of by the Forest department along with the produce in the reserved forests. In *Guntur* the management was vested in the Revenue department but nux-vomica, *rela* and *tangedu* bark were put up for sale by the Forest department in the reserves and unreserves together in accordance with the general practice.

The relations between the Forest and Revenue departments continued cordial.

WALTAIR,
20*th August* 1926.

R. D. RICHMOND,
Conservator of Forests, First Circle.

ANNUAL ADMINISTRATION REPORT OF THE FOREST DEPARTMENT

FOR THE

YEAR ENDING 31st MARCH 1926

SECOND CIRCLE

CHAPTER I.—CONSTITUTION OF STATE FORESTS

1. Alteration in Area.

Reserved forests.—There was a net decrease of about 15 square miles which was chiefly due to disforestation of 9 square miles in *Anantapur* and 6 square miles in *Kurnool, West.* The latter area which was disforested in Chief Conservator's Proceedings No. 219, dated 9th July 1924, was omitted by oversight to be deducted from the total area of the reserved forest in 1924–25. The disforestation was mainly to satisfy the wants for extension of cultivation and to remove grievances of the ryots caused by the proximity of villages to the two reserves of Dorigallu and Gorivikanama. An extent of 25,348 acres or 39·6 square miles was transferred from *Anantapur* to *West Cuddapah* division during the year.

2. *Reserved lands.*—There is a net decrease of 2,058 acres. In *South Cuddapah*, 255 acres were transferred to reserved forests and 15 acres newly added during the year. In *South Kurnool*, the proposed reservation of two blocks of Chennupalli and Pogulla with an extent of 1,738 acres on the summit of the North Veligonda Hills notified under section 4 was withdrawn—vide Chief Conservator's Proceedings Mis. No. 289, dated 18th November 1925. In *Anantapur* 9 acres were newly added during the year, but 89 acres were excluded as the area was not notified under section 4 but was wrongly brought to form 26 in previous years.

2. Forest Settlement.

3. An area of 255 acres in *Cuddapah South* was finally settled and notified under section 16 during the year. Only two bits of 9 and 15 acres respectively were pending settlement at the close of the year.

3. Demarcation.

4. In *Anantapur*, a sum of Rs. 167–1–0 was spent in clearing boundary lines and rectifying existing boundaries to a length of 19 miles and Rs. 14–10–0 in repairing 51 cairns. In *South Kurnool*, the portions disforested in North and South Veligondas were demarcated by 12 feet wide lines at a cost of Rs. 74–8–0. The clearance of dense growth along the eastern boundary between South Kurnool and Nellore was carried out at a cost of Rs. 52. The frontier boundary line between South and West Kurnool and Banganapalli State was maintained at a cost of Rs. 81–14–0 out of funds sanctioned by the Collector. In *West Kurnool*, a sum of Rs. 21 was spent in demarcating enclosures in Pothurajupenta in Bairluty range and Rs. 10–12–0 in cutting a 4 feet line around enclosure survey No. 37 A of Bugganapalle village. Thirty-five miles of boundary lines were cut and cleared of regrowth to a width of 12 feet in portions of South Dhone, Madhavaram, Mettupalle, Rangapuram, Alamur and Kapatralla reserves at a cost of Rs. 126. In *North Cuddapah*, five miles of the boundary between the Government reserved forest and the Ramapuram shrotriem in Badvel taluk were cleared at a cost of Rs. 30 which represent the Government's share of the cost.

Three thousand four hundred and thirty miles of boundary lines are reported to have been cleared and 1,760 cairns repaired by subordinates without any cost. In *East Kurnool*, the forest panchayatdars are reported to have cleared 45 miles of the boundaries of the reserves under their management.

4. Forest Surveys.

5. There was no survey either by the Survey of India Party or by the Madras Survey Party during the year.

Survey of Coupes, alignment of roads, verification and rectification of boundaries, preparation of coupe maps, etc., were done by the local Forest officers.

The prescribed reference maps were posted up to date.

CHAPTER II.—MANAGEMENT OF STATE FORESTS.

Regulation of Management.

Preparation and Control of Working Plans.

(*a*) Preparation.

6. *South Kurnool.*—Of the working plans of Chelama and Giddalore ranges prepared by Mr. A. V. Sundaram Ayyar, the one for Chelama range was sanctioned by the Chief Conservator after

the close of the year; the other working plan as well as the one prepared by Mr. A Raju Nayakar for Gundlakamma range were returned by Conservator to the District Forest Officer for making some alterations.

West Kurnool.—Mr. Wood's working plan of 1911 for the Gundlabrahmeswaram plateau forests, which was kept in abeyance since 1918–19 was re-introduced for working with certain deviations, after obtaining the sanction of Chief Conservator.

In Pecheruvu range an area of about 4,000 acres containing good growth of pole forest was brought under working plan and it was sanctioned by Chief Conservator in December 1925. It was however not brought into force till April 1926. This is the first attempt to introduce systematic working in such a remote part of the Nallamalais.

A working scheme to deal with timber and bamboo areas in the Terai and outer slopes of Nallamalais ranges is under preparation with a view to provide work for the Chenchus and to afford regular supply of small timber, fuel and bamboos to the surrounding villages. Assistant Conservator Mr. A. N. Sarma is on special duty and he has nearly completed the work of stock mapping the whole area and it is hoped that the working plan will soon be drafted by the District Forest Officer.

The revision of the working plan for the Yerramalais was completed during the year; but Mr. Whitehead after an inspection of the area in February 1926 suggested for various reasons a change in the original proposals. A special duty ranger is now employed to prepare stock maps for the areas in accordance with Mr. Whitehead's suggestions which have been approved by Chief Conservator.

North Cuddapah.—A general revision of the working plans of the whole division in accordance with the instructions of the Conservator conveyed in the latest inspection notes is under progress. As a preliminary step accurate stock maps are being prepared.

West Cuddapah.—Simple working schemes have to be drawn up for an area of about 16 square miles of red sanders forests of Ganganapalle and Idupulapaya reserves of Ganganapalle range and of the Yerrakonda reserve of Sanipaya range. The work of stock mapping in Ganganapalle range was taken up and has just been completed. It is hoped that when stock maps are ready for all three divisions of Cuddapah, it would be possible to expand timber fellings. We will thus be able not only to put in the market more red sanders timber but at the same time it would be possible to pay greater attention to the improvement of these valuable forests.

(*b*) Control.

7. The provisions of the working plans were generally adhered to except for the following deviations :—

Anantapur.—The block system of grazing was abolished and substituted by the new system according to which one permit holds good for a whole range. Early burning was substituted for general fire protection and certain closed areas were thrown open to grazing.

South Kurnool.—Works of felling and transport in the timber coupes of Gundlakamma range have fallen in arrears on account of the inability of the ranger to procure coolies and carts.

Though the Chelama Range Working Plan was sanctioned by Chief Conservator after the close of the year, yet coupes (seven timber and fuel, nine timber-cum-bamboos and nine bamboo coupes) were leased out to contractors during 1925–26. It is partly due to the opening up of so many new coupes in this range, which is nearer to the markets than the Gundlakamma range, that works in latter range have fallen into arrears.

North Cuddapah.—The Badvel East fuel coupe No. XII of 92 acres which had fallen in arrears was worked during 1925–26. The further working of the coupes in this series has been stopped in accordance with the Conservator's order which was approved by the Chief Conservator.

In Porumamilla North fuel coupe XIII of 60 acres to be felled in 1924–25 was felled in 1925–26.

South Cuddapah.—There were some minor deviations in the working of the coupes in Rajampet range for which Conservator's sanction was obtained.

West Cuddapah.—Owing to lack of demand and to the difficulty of transport, works in five working circles have fallen in arrears by one coupe in each. In order to improve the selling rate of Kanamalopalli Improvement felling series, the coupes in fuel series of the same reserve was stopped with permission of Conservator.

2. Communications and Buildings.

8. No new works costing over Rs. 5,000 were sanctioned during the year.

(*a*) *Roads and Bridges.*

9. About 17 miles of new roads were constructed at a cost of Rs. 5,555 against 20 at a cost of Rs. 6,2?2 in the previous year.

The details of the important road works are as follows :—

	MILES.	F.	RS.
South Kurnool—			
Completion of bridle-path from Bandlapenta to Basireddipenta.	4	6	309

	MILES.	F.	RS.
West Kurnool—			
Metalling central Nallamalai road in Gundlabrahmeswaram range.	1	0	296
Construction of a bridle-path from Guvvalapenta to Regulapaya.	1	0	600
South Cuddapah—			
Bridle-path from Mallelammakanama to Mogadalapalle.	4	4	1,700
Metalling one furlong of Kodur-Kodivengammabhavi road.	0	1	200
West Cuddapah—			
Extension of Guvvalacheruvu-Mangalabylu road.	3	0	1,848
Cart-track connecting Dinnela rest-house with Dinnela road.	1	5	180

Two hundred and thirty-three miles of existing roads and paths were repaired at a cost of Rs. 17,372 against 251 miles at a cost of Rs. 16,182 in the previous year.

(*b*) *Buildings.*

10. The expenditure during the year was Rs. 22,413 against Rs. 20,243 in the previous year.

Of this amount Rs. 7,974 was spent on new works and Rs. 14,439 on repairs and maintenance against Rs. 5,739 and Rs. 14,504 respectively in the previous year. The establishment charges under this head fell from Rs. 5,833 to Rs. 5,710.

The important items of new works are—

East Kurnool—
- Inspection shed at Mogalutla
- Temporary inspection shed at Narjamula (part).
- Subordinates' huts at Regumanipenta.
- Forest Guards' temporary sheds at Medigundam, Motham and Kurapenta.
- Construction of a platform in E.N. Block No. 2 for camping purposes.

South Kurnool—
- Inspection sheds at Medambha vi, Ahobilam and Pachagundalu.
- Sheds at Diguvametta.

The following incomplete works were completed :—
- Subordinates' quarter at Basapuram and Gazulapalle.
- Range Officer's quarters and office at Isukagundam.
- Quarters for two foresters and one range clerk at Isukagundam in Gundlakamma range.
- Sheds for eight forest guards' in Gunlakamma Range.

West Kurnool —
- Rest house at Rudracode (part).
- Inspection shed at Kalithebodu (Pecheruvu).
- Subordinates' shed at Guvvalakuntla.

North Cuddapah—
New kitchen and out-houses including stable for the rest-house at Rollabodu.
Reconstruction of the rest-house at Rollabodu.
A new latrine for the Badvel range quarters.

South Cuddapah—
Foresters' quarters at Srirangarazupalaiyam.
Purchase of a private shed and converting it into a forest guard's shed at Srirangarazupalaiyam.

West Cuddapah—
Improvement to Vontimitta range office.
Out-houses to Dasarladoddi rest-house.

(c) Miscellaneous.

11. Rupees 1,363 and 1,851 were spent on new works and repairs against Rs. 1,147 and Rs. 1,929 respectively in the previous year.

The chief items of new works were—

	RS.
West Kurnool—	
Digging a trial pit at Honkaram	50
North Cuddapah—	
A new well in Thamballapalle rest-house compound ..	230
Boring a trial shaft at Razulacheruvu (by the Engineering branch of Industries Department).	289
West Cuddapah—	
A pucca well in Maddimadugu rest-house	542
Two trial wells—one at Chintarajupalli of Vontimitta Range and the other in Sanipaya rest-house compound.	111

The other items relate to sinking of trial pits and improvements to water-supply in East Kurnool.

3. Protection of Forests.

(a) General Protection.

12. The total number of cases reported during the year was 5,015 against 5,054 of the previous year involving a decrease of about 0·8 per cent. The decrease was under unauthorized felling as noted below :—

Cases.	Injury to forests by fire.		Unauthorized felling.		Unauthorized grazing.		Other offences.		Total.	
	1924–25.	1925–26.	1924–25.	1925–26.	1924–25.	1925–26.	1924–25.	1925–26.	1924–25.	1925–26.
A. Cases taken into Court.	1	1	900	616	391	329	100	61	1,392	1,007
Cases compounded ..	2	5	2,227	2,208	864	1,128	254	303	3,347	3,644
Cases undetected ..	192	230	105	100	3	21	15	13	315	364
Total ..	195	236	3,232	2,924	1,258	1,478	369	377	5,054	5,015

13. The increase under 'injury to forests by fire' was chiefly contributed by *Anantapur* and *South* and *West Kurnools*. The decrease under unauthorized felling was contributed by all the districts except *West Kurnool* and *North* and *South Cuddapah* and the increase under unauthorized grazing was contributed by all the districts except *South Kurnool*.

The District Forest Officer, Anantapur, states that 'some subordinates have connived at offences because good many reserves have to be handed over to panchayat management. Patrol parties from the sanctioned strength of subordinates in each range were organized for each range and made to work in the same range; but their work was unsatisfactory on the whole as they would not care to disclose the irregularities in beats and sections in which they had worked'.

The District Forest Officer, South Kurnool, explains the increase under 'injury by fire' as mainly due to intentional fires to obtain grass and the decrease under unauthorized felling as due to more coupes having been opened to meet the demand of the local ryots for agricultural implements. The increase under unauthorized grazing is reported by District Forest Officers as due to vigilant patrol and good work turned out by the subordinates.

The increase in other offences is small and calls for no remarks.

14. Of the 1,087 cases taken into court and disposed of by the Magistrates, 777 cases were convicted and 310 acquitted.

Of the 310 cases acquitted, 238 were acquitted on payment of compounding fees in court, 16 were withdrawn by the District Forest Officers and only 56 cases were acquitted on their merits which means that genuine acquittal amounted only to 5 per cent.

15. The total number of cases compounded was 3,607 and the aggregate amount of fees collected was Rs. 55,680 which gives an average of Rs. 15-7-0 per case against 3,223 and Rs. 49,199 in the previous year with an average of about Rs. 15-4-3 per case.

16. Rewards amounting to Rs. 55 were granted to outsiders and subordinates for the detection of forest offences.

(b) *Protection from Fire.*

17. In the whole Circle the area attempted to be specially protected (mainly under the early burning system) was 2,708 square miles against 2,379 in the previous year. The increase was contributed by *Anantapur*, *Kurnool South and West*, and *Cuddapah West*, where more areas were brought under the early burning system during the year.

18. The total area accidentally burnt was 111 square miles against 66 square miles in the previous year and the aggregate area burnt in the specially protected areas was 27 square miles or nearly

one per cent of the area attempted to be protected as against 7 square miles and 0·3 per cent in the previous year. The increase in the area burnt in the specially protected area is contributed by *South Kurnool and North* and *South Cuddapah*. The main cause seems to be the late rains in both Cuddapah and Kurnool districts and on account of which early burning could not be satisfactorily carried out though the operation was prolonged in most divisions till end of February. Hence in the hot weather there was a lot of inflammable grass which had remained unburnt during early burning. It seems that we are attempting more than it is possible for us to do within the short space during which alone proper early burning can be carried out and it may be better to restrict our efforts by concentrating on smaller areas, e.g., felled coupes, and areas which already contain a fair amount of natural regeneration. If we succeed in protecting thoroughly at least such small areas each year, in course of time we should have achieved far more than what we are now able to do.

In *North Cuddapah* one offender was actually caught in the act of setting fire to the forest and he was convicted and sentenced to one month's rigorous imprisonment. In *South Cuddapah* the offenders in only one case were caught and the case ended in one of the accused being awarded three months' rigorous imprisonment, the others being required to execute a bond for Rs. 100 for good behaviour for one year.

19. The average cost for the circle per square mile of successful protection of the specially protected area was Rs. 2–5–1 against Rs. 2–1–10 in the previous year. Each district is dealt with separately below :—

Anantapur.—The artificially regenerated areas of Kupgal and Banavasi reserves of Bellary range were protected at a cost of Rs. 31–12–0 which represents the cost of burning fire lines along roads and railways. Early burning operations were tried in five reserves (47 square miles) of Bukkapatnam range and four reserves (53 square miles) of Kudligi Range at a cost of Rs. 87–6–0 from 15th November 1925 to 15th January 1926, the average per square mile being As. 13–10. There were no complaints from graziers due to early burning.

East Kurnool.—About 228 square miles were treated under early burning and the cost incurred was Rs. 221,—the average per square mile being As. 15–6 against Rs. 1–7–8 per square mile in the previous year. The early burning operations were started in November 1925 and continued up to the first week of March 1926 on account of late rains which were falling till the end of February 1926.

South Kurnool.—The area treated under ' early burning ' in the Nallamalais was 438·5 square miles of which 428·37 square miles

was successfully protected at a cost of Rs. 1,059 or Rs. 2-7-7 per square mile against Rs. 250 or As. 13-9 per square mile in the previous year. The cost per square mile of the actually protected area comes to Rs. 1-13-0 against Rs. 1-1-0 in the previous year. The early burning operations were started in January and carried out till the very end of February on account of late rains and freshness of grass and yet large areas were only partially burnt especially so in the Gundlakamma range. The District Forest Officer supervised the early burning during January and February in Gundlakamma, Chelama and Sirvel ranges. The early burning in Giddalore was not satisfactory and the forester responsible was punished.

A reward of Rs. 70-8-0 was granted to 1 forester, 2 guards and 1 watcher of Obulesunipenta section of Gundlakamma range for good work in early burning during 1924-25.

West Kurnool.—The whole of 568 square miles treated under early burning is reported to have been successfully protected except 193 acres which were burnt. The average cost per square mile was Rs. 2-8-0 against Rs. 1-4-10 in the previous year. The operations were commenced in December 1925 but were completed only in March 1926. Owing to the late rains, the work could not be completed in places as regrowth had appeared. During the course of the operations, the District Forest Officer and the Assistant Conservator inspected the early burnt areas and found that there were vast areas with little or no grass which it was not worth while or possible to burn at all. There are areas the tree growth in which is so poor that the expenditure of even Rs. 2-8-0 per square mile would not be justified. In order to regularize early burning and avoid waste of money and to watch the progress of operations more systematically the Range Officers have been directed by the District Forest Officer to prepare an early burning map for each range showing areas not to be early burnt at all or in which the burning could be done by the subordinates and areas in which early burning is to be done with the help of coolies. The early burning system does not appear to be unpopular with graziers as no complaints were received during the year.

North Cuddapah.—Though the early burning operations were commenced in December 1925, the progress was very much retarded by the late rains which continued even in January with the result that the time for completing the work had to be extended up to the end of February. Even then considerable areas had to be left unburnt owing to the greenness of the grass. There were 16 accidental fires covering in all 7,626 acres of which 13 were in Lankamalais and 3 in the Nallamalais. Out of 372 square miles attempted to be protected, 360 were successfully protected at a cost of Rs. 460, i.e., at Rs. 1-4-5 per square mile against Rs. 1-14-0 per square mile in the previous year.

South Cuddapah.—As in the previous year, all the reserves except Chitvel and extensions and Vathalur reserves were subjected to 'early burning'. Area successfully protected during the year was 428·60 square miles or 99·13 per cent of the area attempted to be protected against 431·36 square miles or 99·85 per cent of the previous year. The total cost of fire protection during 1925 was Rs. 1,099 or Rs. 2–9–0 per square mile successfully protected against Rs. 2–0–11 per square mile in the previous year. There were no complaints from the people about the early burning.

West Cuddapah.—The area attempted to be protected during the year was 555·5 square miles and the cost incurred was Rs. 1,444, i.e., Rs. 2–9–8 per square mile against 462 square miles and a cost of Rs. 1,262, i.e., Rs. 2–11–8 per square mile during the previous year. The area burnt was 300 acres against 241 acres in the previous year. The early burning operations was stopped in this division at end of January.

(c) *Protection against cattle.*

10. The following table shows the areas closed and opened to grazing during the two years—that under report and the previous year:—

	1924–25. SQ. MLS.	1925–26. SQ. MLS.
Closed to all animals—		
Whole year	648	329
Part of year	526	10
Open to all animals—		
Whole year	4,483	5,300
Part of year	...	...

The substantial reduction in the area closed to grazing during the year was due to opening of large areas in Kurnool Divisions in accordance with the orders of the Chief Conservator who after inspecting portions of the Nallamalais of *Kurnool West* was of opinion that it was unnecessary to keep closed such large areas (vide Chief Conservator's Proceedings No. 244, Press, dated 4th August 1924, paragraph 14 and Chief Conservator's Proceedings No. 104, Press, of 14th April 1925). In the Bellary *cum* Anantapur district however there was a slight increase of area closed to grazing (82 square miles against 48 square miles during 1924–25). This was due to the opening during 1924–25 of even closed areas as a special concession due to famine conditions then prevailing in the district.

Penning fees and pentas.—On the recommendation of the Forest Grievances Committee for Kurnool district the Government were pleased to order that the charge of four annas per animal levied for penning licences in *pentas* within the reserved forests should be abolished for 'local cattle' (vide G.O. Press No. 244, Development, dated 12th February 1925). This was given effect to during

the year under report. The term 'loeal cattle' was defined after discussion with the three Kurnool District Forest Officers and the Conservator, so as to mean the cattle of the village within the limits of which the reserve is situated or which it adjoins. This definition was also approved by the Chief Conservator in his L. Dis. No. 3577/25, dated 15th June 1925. The penning of cattle in selected *pentas* for a period of 5 months in the year from August to December has been continued in the Cuddapah district since 1923. In *South Cuddapah*, 3,018 cattle were licensed for penning during the year and the continuance of penning system is reported not to have interfered with the conservancy of the treegrowth by way of thefts of timber and is much liked by the people. In *West Cuddapah*, 12 *pentas* were used by the cattle-owners and 6,377 cattle admitted during the year as against 9,055 cattle in the previous year and the system of penning cattle in the *pentas* on the hills continues to work satisfactorily. In *North Cuddapah*, owing to the favourable rains during 1925, large number of the foreign cattle from Nellore that used to be penned in the reserved forests were penned outside in the unreserves and there was therefore a fall in the revenue from penning fees. In *Anantapur*, penning of cattle was permitted free of penning fees in certain reserves of Bukkapatnam range.

21. In the whole Circle, the number of cattle for which grazing permits were purchased increased from 493,591 to 545,912 cow units and the number of cattle impounded from 50,529 to 60,341. The increase was chiefly due to the withdrawal of the concession of free grazing of cattle permitted in Anantapur district during 1924–25 owing to the scarcity fodder.

22. The following statement compared the grazing revenue—including fees for fodder grass—vide form 80—and the incidence of grazing during the year under report with that of the previous year.

District.	Grazing revenue.			Incidence of grazing per cow unit in acres.	
	1924-25.	1925-26.	Difference.	1924-25.	1925-26.
	RS.	RS.	RS.		
Bellary and Anantapur.	34,074	66,007	+ 31,938	3·09	3·69
East Kurnool	42,599	38,351	— 4,248	9·09	10·9
South do.	19,587	22,196	+ 2,609	10·61	13·13
West do.	39,497	36,032	— 3,465	5·23	7·6
North Cuddapah ..	22,689	18,954	— 3,735	5·5	5·5
South do. ..	7,867	7,607	— 260	8·3	8·0
West do.	25,727	21,798	— 3,929	5·1	5·73
Total ..	1,92,040	2,10,945	+ 18,905		

Grazing Revenue.

23. The increase was contributed by *Anantapur* and *South Kurnool*; but it was partly counterbalanced by decrease in other districts. The increase in *Anantapur* was due to free grazing allowed in the previous year owing to scarcity of fodder, not having been allowed during the year and that in *South Kurnool* to throwing open all reserves, except the worked coupes to grazing in accordance with the Chief Conservator's Proceedings No. 244, Press, dated 4th August 1924.

The decrease was due in *East Kurnool* to many cattle adjoining Nallamalais in Cumbum taluk having gone to Gundlakamma range of South division which was newly opened to grazing; in *West Kurnool* and *North Cuddapah* to the prevalence of cattle disease and consequent loss of many local cattle and also to the non-advent of many foreign cattle for fear of the disease and in *West Cuddapah* to the non-advent of the usual number of Nellore cattle which usually graze in Cuddapah and Vontimitta ranges.

24. The improvement of the grazing incidence, in the three Kurnool divisions was due to the throwing open of all the reserves except worked coupes to grazing. In other divisions, the difference is not appreciable.

(*d*) *Protection against injuries from Natural Causes.*

25. No special measures were undertaken but in *Kurnool East*, and in three Cuddapah divisions creepers are said to have been cut by subordinates and by Vernacular Training School in Cuddapah North.

CHAPTER III.—SYLVICULTURE.

SECTION I—AFFORESTATION AND REGENERATION OF FORESTS.

(i) *General progress of areas under regeneration.*

26. *Anantapur.*—No new plots were opened during the year in the sandal plots of Amagondapalayam reserve in Bukkapatnam range as the plots of previous years are not yet fully stocked. The unsuccessful plots 6 to 13 were re-dibbled during the year with 30 lb. of sandalwood seeds but for want of rain there was no germination and the operation was therefore a failure.

East Kurnool.—Regeneration by coppice was fair in all the old emergency coupes except those of Chintala, Tummalabailu, Pedda Chama, Regidikunta and Utla.

South Kurnool.—The clear-felled experimental plot of 16 acres in Gundlakamma range to observe the natural regeneration under different conditions, i.e., when weeded, early burnt, late burnt, not

burnt, not weeded, etc., was maintained and notes of observations are carefully maintained. In Chelama range, the small area of *yepi* regeneration opened to record maximum and minimum and the average height of the natural seedlings of this species was fenced and the periodical height measurements were recorded. Regeneration operations were conducted on 16½ acre plot at Errodu in Sirvel range by sowing in burnt patches at a cost of Rs. 32.

A nursery was raised at Isukagundam at a cost of Rs. 113-10-0. Sample plots for measuring girth measurements of trees around Isukagundam and in Chelama range were opened at a cost of Rs. 23-6-9 and Rs. 11-14-0 respectively.

West Kurnool.—The 'emergency coupes' which were worked under the simple coppice method have only coppice shoots in them; seedling regeneration was absent: artificial regeneration by dibbling has not been a success except in very few places and this method of regeneration cannot be depended upon.

In *North Cuddapah* reproduction both by coppice shoots and natural seedlings and root suckers was very good, particularly on worked areas on hill slopes where the seedlings have got growing space and are not smothered by dense growth of bushes. Red sanders seedlings in particular are very prominent and but for repeated fires would do very well.

West Cuddapah.—Red sanders coppice shoots have come up well in the improvement felled coupes of the year and *Chloroxylon Swietenia* and *Anogeissus latifolia* in the fuel coupes of Konarazupalle Reserve. Natural reproduction of *Hardwickia binata* and *Soymida febrifuga* were good in Sanipaya range.

(*ii*) *Establishment of reproduction under Working Plans or Schemes.*

(*a*) Mainly natural.

27. Natural regeneration was good throughout the Nallamalais. The regeneration of seedlings of *Hardwickia*, *Terminalia Paniculata*, *T. tomentosa*, Teak, *Bassia*, *Anogeissus* and rosewood was good, the first in open grassy blanks and the rest on hill slopes.

In *Anantapur*, the reproduction of *Hardwickia* in closed areas in Bukkapatnam range is good; but unfortunately one does not find many saplings and poles. The reason is that such tender trees are badly handled by grass cutters who strip off the bark and make use of it for tying up grass bundles.

In *North*, *South* and *West Cuddapah*, the natural regeneration of red sanders was satisfactory. Reproduction by coppice is generally good.

(*b*) Mainly artificial.

28. Nil.

(*c*) Afforestation.

29. Afforestation of abandoned *pentas* lying in the midst of working circles in the Cuddapah Palakondas was continued. An area of 5 acres in Chenalabylu *penta* was taken up during the year; it was ploughed once and lines 10 feet apart were laid out. Sowing in pits 6 feet apart was done along the lines and about 69 lb. of red sanders seeds and 30 lb. of *Albizzia Lebbek* seeds were sown at a cost of Rs. 27. The 1,182 seedlings in the previous year's area of 10 acres were weeded once and watered at a cost of Rs. 65-8-0. Two thousand five hundred palmyra seeds were dibbled in the Idupulapaya plantation and regeneration is good.

(iii) *Plantations and other forms of regeneration not under Working Plans or Schemes.*

30. Form 75-B furnishes necessary particulars under this head.

Anantapur.—The Moka plantation near Bellary is doing well and Sissoo is regenerating naturally. Regeneration of *Hardwickia* and sandal trees in Gunda, Bandri and Somalapuram reserves of Bellary district is very satisfactory.

West Kurnool.—The survey of the old teak plantations in Nandyal range was done by the ranger himself and the sketches are under preparation. Those in Gundlabrahmeswaram range yet remain to be surveyed. A sum of Rs. 190 was spent during the year for clearing and weeding teak plantations of Pecheruvu, Sudam and Pangidi.

South Cuddapah.—The only regular plantation in this division is 'Kodur Red Sanders Plantation' in Balapalle range. Natural sandal is coming up luxuriantly as also seedlings of red sanders. Red sanders seedlings underplanted in plot 1 during rains of 1924 were watered during the summer and, if they survive this summer, no more watering will be necessary thereafter. Some casualties among the transplanted seedlings were, as far as possible, replaced. The District Forest Officer is doubtful about their success as the overhead shade is too much for the light demanding red sanders.

(iv) *Tending.*

31. *Anantapur.*—Sandal trees in Amagondapalaiyam reserve were freed from surrounding growth which was interfering with their crowns, taking care not to kill host plants.

South Kurnool.—The regeneration coupe I of 1922–23 at Isukagundam, the experimental plot of one acre in 1922–23 regeneration area and the 2 acres experimental plot in Timber coupe of 1924–25 at Isukagundam were weeded and tended. The soil around the seedlings in the 2 acres dibbled area was wounded.

West Kurnool.—The 201 acres of teak plantations at Pangidi were thinned during the year at a cost of Rs. 818. The revenue realized during the year from thinnings was Rs. 419 and there is yet a large stock of timber to be disposed of and which it is hoped will cover the cost of the operation.

West Cuddapah.—Tending of the sandalwood plantation in Pullalamadugu was done under the personal supervision of the District Forest Officer.

(v) *General.*

32. *East Kurnool.*—Sowing of sandal wood in baskets was tried, but the results were most disappointing. Similar fate met the small direct sowings which were made in the Maddipenta forests. In Chinna Mantrala emergency coupes ebony seeds were sown broadcast in June 1925; the germination was reported to be fair; but few seedlings survived. A small teak nursery of three square chains and containing 44 beds (3 feet × 4 feet) was opened at Maddipenta for supplying transplants and the cost of the formation, upkeep of the nursery and purchase of bamboo tatties for covering the beds during hot weather amounted to Rs. 182.

West Kurnool.—A sum of Rs. 27–6–0 was spent in regenerating blanks over 10 acres in the emergency coupes of Bairluty and Gundlabrahmeswaram ranges by planting stumps of natural seedlings of Teak, *Pterocarpus* and rosewood and the results of the operations are being watched.

South Cuddapah.—The teak seedlings of Kangumadugu did not show signs of promise though a few of them were coming up well. Some of the sandal seeds dibbled in the nurseries at Kangumadugu and Mogilipenta have come up very well and hold out very good promise. The sandal seedlings of the previous year along the roads and nurseries in Balapalle range were coming up very well.

West Cuddapah.—Attempts are being made to spread sandalwood in this division. Plots one square chain each were selected in suitable places in the several sections of the five ranges and sandal seeds were sown therein. Twenty-three nurseries of one square chain each were opened and 52 lb. of sandal seeds were sown therein; the result was that in 15 nurseries the germination proved a failure and in the remaining 8 nurseries 144 seedlings in all came up, of which 41 were healthy. The seedlings in Neerukona of Ganganapalli range are doing well and are about 7 feet in height.

Of the already established sandalwood plantations at Pullalamadugu in Cuddapah range and at Ambabhavi in Sanipaya range, the plants are thriving well. Some natural regeneration of sandalwood is also seen in the Mudumpad rest-house compound.

North Cuddapah—Regeneration of sandalwood in Vaneswaram plot.—This is a very promising plot and has already begun to serve as a propagation centre. It was started in 1919 by broadcasting of

sandal seeds over about 25 acres along banks of a stream. There are now 93 well established plants in the area the biggest of which are about 25 feet in height; they have begun to bear good seeds. In November 1925 the District Forest Officer inspected the area and found plenty of fresh young seedlings under two of the biggest trees; but most of these died during the hot weather.

Rollabodu plot.—There are 112 healthy seedlings in this area which is very promising. There is also a healthy sandal tree of about 15 feet in height behind the newly built kitchen at Rollabodu.

West Cuddapah.—In the Improvement coupes felled during the year 1924–25, tending operations were undertaken during the year for helping the young growth of red sanders, *Anogeissus latifolia* and satinwood species. The operations consisted in cutting the climbers and thorny species that interfered with the growth of these three principle species. Eleven coupes consisting of a total area of 1,227 acres in the three ranges of Vontimitta, Cuddapah and Vempalle were taken up and tended at a cost of Rs. 402-9-0.

SECTION II.

Tending of the growing stock.

33. *West Kurnool.*—Creepers cutting was done in coupes VIII and IX of the Gundlabrahmeswaram working plan at a cost of Rs. 101-14-0.

CHAPTER IV—EXPLOITATION.

(a) SYSTEM OF MANAGEMENT.

(i) *Major Forest Produce.*

34. The subjoined statement shows the total areas under working plans and the different systems of management in force during the year:—

Sylvicultural system adopted.	Area in square miles.	Percentage of total area under each method.
Clear felling	39	3·7
Simple coppice	65	6·1
Coppice with standards	343	32·3
Improvement fellings	86	8·1
Selection fellings	109	10·3
Area under working plan, but not for extraction of major produce (closed to fellings).	419	39·5
Total ...	1,061	100·0

Anantapur.—Headload chits for dead fuel were sold in four ranges to enable Sugalis and poor people to earn their living. In the areas not under working plan 'simple coppice' was the method adopted except for two coupes of Tadpatri range where the method of 'coppice with standards' was adopted. In all 1,879 acres were exploited during the year.

East Kurnool.—Over-mature and dead and dying trees in Markapur and Pedda Dornal ranges were extracted under the selection system for extraction of logs and spokes and felloes. In Pedda Dornal, Ganjivaripalli and Yerrakondapalaiyam ranges coupes (extending over 2,450 acres) were worked on a 'modified improvement felling' system and useful trees were extracted and converted into small timber and agricultural implements. Coupe II of 37 acres in Tummalapenta and 7 acres in coupe VI of Regatigunta were felled under 'simple coppice'. Somidevipalli fuel coupe VII of 50 acres was worked on the 'coppice with standard' system.

South Kurnool.—The timber coupes (369 acres) in Sirvel range, were worked under 'clear fellings' with natural regeneration. The timber and fuel coupes in Giddalore and Owk ranges and a portion of Chelama range (Gazulapalle Working Circle) and the fuel coupes in Sirvel range were worked under 'simple coppice' system, the total area worked being 1,642 acres. In Chelama range, coupes covering 908 acres were worked under 'coppice with standards' system. In Gundlakamma, the timber coupe (232 acres) was worked under 'Improvement *cum* Selection' system.

West Kurnool.—'Coppice with standards' system was adopted in the case of pole forests of the Upper Terrai and 'simple coppice' in the case of the poor scrub forests of the Lower Terrai and in all four coupes with an area of 365 acres were thus worked. 'Improvement *cum* Selection' fellings were undertaken in the Gundlabrahmeswaram range and according to the working plan coupe VII (area 250 acres) was worked during the year. Coupe XIV of 160 acres of Pattikonda working circle in Kamalapuram reserve and coupe XV of 157 acres of Kurnool Working Circle in Yeperlapad reserve were worked under the 'coppice with standards' system. These two coupes are in the Yerramalais and stocking being very poor it is difficult to obtain a sufficient number of good standards fit for retention.

In the three *Cuddapah divisions* the more important timber forests containing red sanders were worked under 'improvement felling' system and other forests chiefly yielding fuel were worked under 'coppice with standard' or 'clear felling' system.

Unregulated fellings.—In *South Kurnool* and *North Cuddapah* in cases in which free grants of forest produce were sanctioned from portions of reserved forests remote from coupes under working, an area was demarcated by the range officer and the fellings by free grantees was restricted to it. As this enables better control it will

henceforth be adopted wherever possible in all divisions of the Circle. In *West Kurnool*, permits were granted as usual for removal of palmyra trees from the Alamur reserve tope on seigniorage fees; in Pecheruvu range, dead *Pterocarpus* wood was felled and converted into spokes and felloes, on a fairly large scale. In Sivapuram range also, a small quantity of dead wood was collected.

(ii) *Minor Forest Produce (including bamboos).*

35. There was very little change in the method of working. Bamboos and other minor forest produce were leased out to contractors in all the divisions except in *East* and *West Kurnool*; in *East Kurnool* they were collected by the Chenchus under departmental supervision; but in *West Kurnool*, bamboos and tamarind, hitherto collected and sold departmentally, were leased to contractors in September 1925 and this method proved more remunerative. The lessees were under obligation to employ Chenchus as far as possible and it was seen that they received fair wages from the contractors. All other kinds of minor forest produce were collected departmentally by Chenchus.

In *South Kurnool*, *Cassia fistula* bark was not sold; the right to collect nux-vomica in one range only was sold, as the crop in other ranges was poor.

In *Anantapur*, fodder grass was leased out to Mr. Howes (the Military Grass contractor) over an area of 3,901 acres in Bellary East and West reserves and to Mr. Jalal Sahib in Guttur reserve of Bukkapatnam range. In *South Kurnool*, the Military Grass Farm did not continue their operations during the year. Free removal of fodder and thatch grass was generally allowed from reserves as usual for bona fide domestic purposes. Some instances were found in which this privilege was abused and timber pieces were cut from the forests and concealed under grass taken in carts. In the three *Cuddapah divisions*, 3,565 cartloads of green leaf manure were removed at Re. 1 per cartload against 4,477 in the previous year; the decrease is due to absence of timely rains. In *South Kurnool*, green leaves for manure were removed as usual at Rs. 2 per cartload but there is not much demand for the produce except in a portion of Nandyal reserve of Nandyal taluk and in the Veligondas of Giddalore taluk.

(*b*) AGENCY OF EXPLOITATION.

(i) *Departmental Agency.*

(1) Major Produce.

36. Departmental operations for the extraction of timber and fuel were as usual conducted in the *East* and *West Kurnool* divisions to give regular employment to Chenchus.

In *South Kurnool*, Isukagundam coupe No. III was worked for timber in the Gundlakamma range; an expenditure of Rs. 8,106 was incurred during the year for felling and carting timber to the sale depot of Diguvametta. Besides 8,676 cubic feet of softwoods of and above 3 feet in girth were felled to the north of Chelama and sold in auction to meet the demand of slate manufacturers at Markapur.

In *Anantapur* 3,675 cubic feet of timber obtained from casuarina trees felled were sold to Kolar Gold Fields. Two thousand two hundred and fifty cubic feet of *Anogeissus* wood was felled for manufacturing charcoal as an experiment. One thousand six hundred and twenty-five lb. of charcoal was also prepared from gnarled *Hardwickia binata* with a view to exploit such badly shaped trees and to see if it could be sold with profit. The experiment proved a failure as the quality of charcoal was poor and there was no demand for it at favourable rates. Two hundred and twelve cubic feet of roughly dressed dead and dying sandalwood was extracted and sold.

In *South Cuddapah* as there were no offers for the purchase of standing growth in five improvement felling coupes they were worked departmentally. The dead and dying red sanders and sandalwood trees in Kodur red sanders plantation were also worked departmentally. An area of 25 acres in each of Balapalle, Kodur and Rajampet ranges outside the working plan area was worked departmentally under the "selection method" chiefly to increase the revenue. The operation was not a success, since the revenue realized was not attractive.

In *West Cuddapah* departmental working of Brahmanayerragudi improvement coupe No. IX was undertaken during the year at a cost of Rs. 420. The total quantity of fuel extracted was 7,594 cubic feet which was sold for Rs. 1,066-2-0 at site.

Other items collected departmentally were obtained from the clearing of boundary lines or were specially felled for departmental buildings.

(2) Minor Forest Produce.

37. As mentioned above, bamboos and other minor forest produce were collected by Chenchus under departmental supervision in the Nallamalais of *East* and *West Kurnool* divisions.

In *South Kurnool* an experimental area of 50 acres was opened for the extraction of *Hardwickia binata* fibre in Jaladurgam reserve. Actually nearly one ton of fibre from 50 acres was extracted at a cost of Rs. 29-4-0. It fetched Rs. 63-12-0 when sold in auction. The Assistant Utilization Officer corresponded with a Bengal firm which requires this fibre. Samples of the fibre and rope made out

of it were sent to the firm and they were appreciated, but it does not seem that a regular trade will be established for this produce, though the question of supply of yarn made from the fibre is still under investigation and correspondence.

A small quantity of bamboos, thatch grass, etc., were collected in *North* and *South Cuddapah* divisions for departmental works.

(ii) *By Purchasers.*

38. The bulk of the exploitation of major and minor forest produce except in *Kurnool West* and *East* was effected by contractors, lessees and permit holders.

(iii) *Free Grantees.*

39. Free grants were made in all the divisions (both from reserves and unreserves) chiefly to rebuild houses destroyed by fire. The other items of free grants were for construction of plague sheds in *Anantapur* and for the construction of huts of the police ghat talaiyaris in *South Cuddapah*. In *South Kurnool*, the cartmen of Chelama and Diguvametta employed by the department were given materials free of cost to repair their carts.

The following statement shows the quantity and value of free grants :—

Timber.		Fuel.		Bamboos.		Grass and grazing	Other minor forest produce	Total.
In thousands of cubic feet.	Value.	In thousands of cubic feet.	Value.	Number.	Value.	value.	Value.	Value.
	RS.		RS.		RS.		RS	RS.
35	10,550	1	40	42,160	317	..	147	11,054

(iv) *Rights and Privileges.*

40. The Chenchus in the *Kurnool* divisions availed themselves of the concessions admitted at forest settlement, viz., (1) removing timber for their huts, (2) enjoying minor produce and (3) grazing their cattle numbering 509 buffaloes, 1,085 cows and bulls and 3,064 goats and sheep in the reserves without payment of fees. In fact, the number admitted for free grazing at settlement has been exceeded, but it is not considered advisable to make the Chenchus purchase grazing permits for the excess numbers.

Two villages in the *North Cuddapah* division have the right of free grazing over an area of 820 acres in the Lankamalais reserve. Two other villages are allowed to graze 200 cows and 700 sheep at

concession rates of 1 anna per cow and 6 pies per sheep in Chennupalle reserve. The right to free grazing was availed of for 585 cows and bulls in the Settigunta reserve of *South Cuddapah* division.

In *West Cuddapah* division 150 bulls belonging to departmental contractors working in the Palakondas of Vontimitta range were allowed as usual to graze at the concession rate of 1 anna 6 pies per bull.

(c) Outturn and Sources of Forest Produce.

Agency of exploitation.	Timber in thousands of cubic feet.		Fuel in thousands of cubic feet.		Bamboos. Value.		Minor forest produce and grazing. Value.	
	1924–25.	1925–26.	1924–25.	1925–26.	1924–25.	1925–26.	1924–25.	1925–26.
					RS.	RS.	RS.	RS.
1. Government ..	112	202	703	847	24,438	13,667	11 627	6,701
2. Private agency ..	723	726	3,028	3,325	40,593	51,115	4,22,930	4,71,332
3. Free grantees ..	38	35	..	1	321	317	162	147
4. Right and privilege holders.	1	..	1	1	1	1	3,816	4,248
Total ..	874	963	3,732	4,174	65,353	65,100	4,38,535	4,82,428

41. *Departmental Agency—Timber.*—The increase was due chiefly to the re-introduction of the Gundlabrahmeswaram working plan in *West Kurnool*, to the supply of a large quantity of casuarina poles to the Kolar Gold Fields in *Anantapur* and to five coupes having been worked departmentally in *South Cuddapah* as they could not be sold standing at reasonable rates.

Fuel.—The increase was contributed by *West Kurnool* and was due to the Chenchu working circle containing more trees fit for fuel.

Bamboos and Minor Forest Produce.—The decrease under these two heads was due to the collection having been leased out to the contractors after September 1925 in *West Kurnool.*

42 *Private Agency—Timber.*—The increase is not appreciable.

Fuel.—The increase was due to greater quantity of yield from coupes in *Anantapur* and *North Cuddapah.* The sale of dead and dying casuarina trees in Moka plantation, the value of tree growth collected from mining companies and the larger amount realized by the Revenue Department from the sale of dead wood in *Anantapur* also contributed to the increase.

Bamboos.—The increase was due chiefly to the lease of the produce in *West Kurnool* after September 1925, previous to which it

was collected departmentally and to the increased quantity extracted by contractors of the three Cuddapah divisions owing to larger number of coupes sold.

Minor forest produce.—The increase was due chiefly to the withdrawal of the concession of free grazing allowed in the previous year in *Anantapur* and to the sale of *rela* bark in the whole of that division; to the lease amounts of tangedu bark relating to 1926–28 having been collected as revenue in March 1926 in *West Kurnool* and to the good prices realized for the sale of *tangedu* bark and *tooki* (*Diospyros*) leaves in *West Cuddapah.*

CHAPTER V.—FINANCIAL RESULTS.

43. The subjoined statement compares the financial results of the year with those of the previous year and with the average of the previous quinquennium:—

	1925–26.	1924–25, excluding Chittoor.	Average of the preceding five years.
	RS.	RS.	RS.
Revenue	9,21,031	7,93,848	7,59,394
EXPENDITURE.			
B. Conservancy and Works and 52-A. Capital.	1,46,728	1,49,289	1,73,502
C. Establishments	5,99,559	6,27,521	5,85,343
Total ..	7,46,287	7,76,810	7,58,845
Net results ..	+ 1,74,744	+ 17,038	+ 549

44. During the year the gross revenue increased by Rs. 1,27,183. It was chiefly contributed by Anantapur district and was due largely to withdrawal of the concession of free grazing allowed during the previous year (1924–25) on account of drought then prevailing in Anantapur district. The increase was also due to rela bark having been leased out for whole of that district. Every other district, except Bellary and Cuddapah North, also partly contributed to the gross increase of revenue.

Of the gross receipts—

25·3 per cent was derived from major produce;
22·9 per cent was derived from grass and grazing;
35·5 per cent was derived from minor forest produce;
7·6 per cent was derived from bamboos;
8·7 per cent was derived from miscellaneous items;

45.—*B. Conservancy and Works.*

The expenditure was less by Rs. 2,561 due chiefly to the giving up of departmental collection of bamboos and of minor forest produce in favour of the lease system in *West Kurnool* Division.

C. Establishments.

46. The expenditure decreased by Rs. 27,962. This was chiefly due to the fact that the expenditure of 1924–25 included Chenchu establishment charges, and the pay of two Conservators (old II and III Circles) and of their establishments as apportioned in annual Form No. 80 of that year and to the abolition of the Bellary district and of the Rachakonda range in Kurnool East Division.

47. The financial results of each division as shown in Form No. 43 are dealt with below:—

There was surplus in the following divisions:—

		Surplus. 1925–26.		Surplus or deficit. 1924–25.
		RS.		RS.
Anantapur *cum* Bellary	...	1,95,981		91,634
South Kurnool ...	...	6,014		11,092
West Kurnool ...	...	28,280	minus	4,465

The increased surplus in *Anantapur* cum *Bellary* was largely due to the return of normal conditions which did not necessitate the concession of free grazing as was the case during 1924–25. The surplus in *South Kurnool* decreased owing to the fact that two Extra Assistant Conservators on special duty were attached to that division, one for preparation of working plans and another for carrying out experiments in regenerating the Nallamalais. The following divisions did not work at a profit:—

East Kurnool (minus Rs. 18,195).—The decrease was, however, less by Rs. 7,799 as compared with last year's deficit.

The concession of free penning for local cattle contributed nearly Rs. 4,300 to the deficit and there was some increased expenditure on account of transfers of rangers and posting of senior grade Rangers.

North Cuddapah (minus Rs. 16,598).—The deficit of this district would have been considerably reduced if the expenditure of Vernacular Training School amounting to Rs. 11,121 was not wholly debited to it. There was a large fall of nearly Rs. 3,735 in grazing revenue from foreign cattle which also contributed to the deficit for 1925–26.

South Cuddapah (minus Rs. 16,827).—The deficit, though large, is considerably less (by Rs. 18,539) than that of 1924–25. This division contains valuable red sanders forests which require a large establishment for proper protection.

West Cuddapah (minus Rs. 4,335).—The deficit working was due to the fall in grazing revenue of nearly Rs. 4,000 owing to the non-advent of foreign cattle. The expenditure, however, decreased by Rs. 5,570.

48. The outstanding revenue at the close of the year was Rs. 99,199, of which Rs. 94,158 is for coupes and leases of the following year.

49. The estimated value of timber and other produce at the sale depots at the close of the year was Rs. 39,308 against Rs. 27,155 at the commencement of the year.

50. It will be seen from the above details that all the three Cuddapahs have worked at a loss amounting to Rs. 37,760. Even after deducting cost of the Circle Vernacular Training School which is held in Cuddapah North Division, the net deficit amounts to Rs. 26,639. This is largely due to comparatively heavy expenditure on establishment which has to be maintained for protecting the red sanders forests which though potentially valuable are not paying very well at present on account of the damage from which they have suffered in the past. Another important reason is the comparatively very low grazing rates in force in the Cuddapah district and proposals for increasing which to the ordinary rates prevailing elsewhere have been submitted to Government.

CHAPTER VI.—RESEARCH AND EXPERIMENTS.

51. In the *Moka plantation* (Bellary district) trenches were dug by the subordinates around 30 sissoo trees to induce propagation of sissoo by root-suckers. The reproduction was successful; but owing to severe drought, trees showed signs of withering and further trenches were not dug.

The sample plots in *Kupgal* and *Banavasi plantation* of Bellary district, opened in August 1923 under Chief Conservator's instructions to determine whether the cutting back of the stunted *nim* and *Hardwickia* trees and the working of the soil would improve their growth, were kept up. In Kupgal, the growth in the coppiced and ploughed areas in the *nim* plots is distinctly better. In Banavasi, the growth within the plots was found to be more vigorous and healthy than in the surrounding forest.

North Cuddapah.—The sample plots in Joti and Pichireddibhavi improvement Series and in Sancherla fuel coupes were maintained.

South Cuddapah.—In the sample plots opened in all ranges of the division, girth measurements of the trees are recorded annually in separate registers maintained for the purpose with the object of finding out the average annual increment, especially of red sanders trees.

52. *Kurnool.*—As ordered by Chief Conservator after his inspection of a portion of Nallamalais (Chief Conservator's Proceedings No. 244, Press, dated 4th August 1924), an Extra Assistant Conservator Mr. B. Kesava Vittal was appointed on special

duty to conduct regeneration experiments in the Nallamalais of the three Kurnool divisions. He began work in May 1925 according to a programme drawn up by Conservator and approved by Chief Conservator in his L. Dis. No. 5693 of 21st August 1925. Sample plots have been opened at Dhone, Chelama, Diguvametta, Malakondapenta, Isukagundam, Gundlabrahmeswaram, Ramannapenta, Meddipenta and Bairluti. In all there are 26 plots, of which 8 are for the study of natural and 18 for the study of artificial regeneration. The species experimented with are teak, *Terminalia tomentosa*, *Pterocarpus marsupium*, rosewood, *Anogeissus latifolia*, *Hardwickia binata*, sandalwood, red sanders, soap-nuts and ebony. In addition trees of different girth classes have been marked at two centres to record the periodic girth increments of the more important timber species.

Plot files are maintained for all sample plots and details are recorded as regards the nature of work done and the exact cost of each item. As however the plots have only been opened recently, it is too early to give definite results. Recently the orders of Chief Conservator have been obtained to send out the Extra Assistant Conservator on a short tour with the Forest Research Officer, Madras, so that he may study the approved methods of conducting such experiments by visiting some selected sample plots in the VI Circle.

CHAPTER VII.—ADMINISTRATION.

53. *Changes in territorial jurisdiction.*—The Third (Madras) Circle was abolished and a new Working Plans Circle with headquarters at Ootacamund was constituted with effect from 1st May 1925; on account of the abolition of the Third Circle, the three Cuddapahs and Chittoor were transferred to the Second Circle. Subsequently the Bellary division was abolished and the Chittoor division transferred to Fourth Circle with effect from 1st November 1925.

Dorigallu and Gorivikanama reserves of Anantapur division were transferred to West Cuddapah.

In *East Kurnool*, Rachakonda range was abolished and the division was re-arranged into five ranges (Dornal, Markapur, Turimilla, Ganjivaripalli and Yerrakondapoliem). This was sanctioned by the Chief Conservator and was given effect to from 1st December 1925.

In *West Kurnool*, an area of 12,500 acres was transferred from Bairluti to Pecheruvu range as this area can be better controlled by the Pecheruvu range officer.

54. The names of the officers who held charge of the Circle are shown below :—

Name of officer.	Period. From	Period. To
C. C. Wilson, Esq. ...	1st April 1925 ...	18th November 1925.
T. A. Whitehead, Esq.	19th November 1925.	31st March 1926.

55. *Tours.*—The Chief Conservator toured in October 1925 with the Home Member in the *Anantapur* division.

The Conservators toured in all the divisions of the Circle during the year and spent 184 days in camp and were able to inspect all the District Forest Officers.

56. All range officers were inspected during the year and all District Forest Officers spent sufficient time in camp.

57. *Audits.*—All the District Forest Offices were inspected by the Audit Officers with satisfactory results.

58. *Recruitment and Training.*—The Assistant Conservator Mr. V. S. Kuppuswami who was undergoing training under the Conservator was transferred to Chittoor in October 1925.

59. *Recruitment to the Madras Forest College.*—One fourth grade forester from *East Kurnool* was deputed for training to the Madras Forest College for the 1925–27 course and a second grade forester returned from the College with a lower standard certificate and was posted to do duty under the Special Silvicultural Officer, Kurnool.

60. *The Vernacular Training School.*—The 1925 session was again held in *North Cuddapah* and it ended in August 1925. A separate report has already been sent. The current year's session in the same division began on 16th January 1926. Ranger C. Ramaswami Nayudu, B.A., holds the post of Senior Instructor and ranger S. Sankara Ayyar that of Junior Instructor. The session opened with 31 students, viz., 4 foresters and 27 forest guards on the roll. The school was inspected by the District Forest Officer twice. The health of the students was satisfactory.

Four forest guards who were deputed to the Russellkonda Vernacular Training School from East Kurnool underwent training and returned two with first class and two with second-class certificates in June 1925.

61. *Health of Establishment, including an account of measures of Sanitation and Casualties.*—The health of the establishment is reported to have been satisfactory in *Anantapur* and *North* and *West Cuddapah* and not good in *Cuddapah South.* But in three *Kurnools*

many subordinates suffered from fever and enlargement of spleen and in all 15 men died during the year. Many subordinates had also to be given leave on medical certificates.

In *Anantapur*, 1 forester, 1 guard and 1 district forest office peon died during the year.

In *East Kurnool*, 2 range clerks and 2 guards died of malaria. The subordinates had the benefit of departmental supply of medicines as usual ; but the supply of quinine was not sufficient.

In *South Kurnool*, 1 forester and 2 guards died of malaria.

In *West Kurnool*, 1 ranger, 3 foresters and 4 guards died on account of enlargement of spleen while on medical leave. In the case of the ranger there was suspicion of complication with Malta fever supposed to have been brought on by the use of milk from goats of a foreign type that are said to be found with the Chenchus. However a few samples of goats' milk on analysis by the Chemical Analyser did not show any bacilli of this fever and we have not been able to ascertain as to how the idea has gone abroad that Maltese goats were brought to the Nallamalais at some distant date in the past.

In *North Cuddapah*, the typist of the District Forest Office and one guard died of fever.

In *South Cuddapah*, many suffered from malaria badly and one range peon died of chronic malaria.

62. The proposal to improve the water-supply at Rudracode in the *West Kurnool* division has been included in the part II scheme for 1927-28. A good deal has been done to improve the sanitation of the important forest camp at Diguvametta in Kurnool South division, by clearing the surrounding growth and by supplying good spring water by means of a water pipe. A scheme is under preparation of supplying good drinking water to several important camps in the Nallamalais of the Kurnool district.

63. *Work and conduct of establishment.*—The work and conduct of rangers during the year under review was generally satisfactory. One supernumerary, ranger was dismissed for extortion and bribery.

The conduct of the protective staff was on the whole far from satisfactory, especially so in Anantapur district.

CHAPTER VIII.—GENERAL.

(1) FORMATION AND MANAGEMENT OF PANCHAYATS.

64. No new panchayats were formed in any of the divisions of the Circle during the year. However steps have since been taken for early formation of panchayats for the numerous ryots' forests in *Bellary* and *Anantapur* districts and the Special Panchayat Officer

has since April 1926 handed over a large number of reserves, but the progress will appear in 1926–27 report. As a result of this rapid progress in forming panchayats, five ranges will be abolished in the Bellary *cum* Anantapur division by September 1926.

Under G.O. No. 912, Press, dated 23rd June 1925, the control of forests under panchayats was transferred to the Board of Revenue from 1st July 1925, since which date the forest department ceased to have even a nominal connexion with the panchayat reserves and even the reports regarding work of panchayats are received and reviewed by the Board of Revenue.

(2) CONFERENCES AND MEETINGS.

65. In accordance with the G.O. No. 703, Development, dated 12th May 1925, local committees were constituted in the districts of Bellary, Anantapur, Kurnool and Cuddapah to scrutinize the classification of reserves already made by Mr. Whitehead and to make such recommendations to Government as might seem necessary. The District Forest Officers, Bellary, Anantapur and North Cuddapah, were members of the committees of the districts concerned and the Conservator was a member of the committee formed at Kurnool. The Conservator Mr. Whitehead was also present at the meeting of the committee held at Anantapur in an advisory capacity. Final orders of Government on the reports of these committees were not received during the year under report.

(3) MEASURES FOR IMPROVING LOCAL SUPPLIES AND FACILITIES.

Timber and fuel.

66. *Anantapur.*—Fuel coupes were as usual opened and sold in public auction to meet demands of the public. Fuel head-load chits also were issued in some ranges. One experimental coupe was opened in Kothakota reserve to supply agricultural implements under the Kollegal system according to which ryots were themselves permitted to cut and fashion agricultural implements on two fixed days each week. The District Forest Officer reports that this has done much harm to the forests as ryots picked out the best trees and have pollarded many trees.

East Kurnool.—Eight coupes were opened in different ranges in which dead, dying and deformed trees that could be advantageously converted into useful timber or agricultural implements were extracted departmentally on 'modified improvement system' and sold to the local villagers at the scheduled rates. Three more coupes were leased out to supply the rural demand for fuel and small timber.

South Kurnool.—With a view to supply the urgent demand for agricultural implements and timber, two coupes—one in Chelama

range and the other in Gundlakamma range 4 were worked departmentally, but the sales of timber, etc., brought from the coupe of Gundlakamma range and stored at the Diguvametta sale depot were not very encouraging. Besides, 11 timber and 29 fuel coupes in the different ranges of the division were leased out to supply the demand of the ryots for fuel and small timber and the contractors were bound to sell such materials from their coupes at the market rates to the local populace.

West Kurnool.—As usual, two fuel coupes were sold to the contractors in the Yerramalais and four Chenchu working circle coupes were felled departmentally in the Nallamalais. The supply of fuel was found to be more than sufficient and so further collection had to be stopped at the end of the year. Timber, etc., required for bona fide agricultural purposes were sold at half the usual rates; but only such timber that was over six months old was given at these rates. This concession has since been withdrawn in consultation with the Collector as it leads to fraud and it was found difficult to differentiate the old from the new stock.

North Cuddapah.—Twenty-two fuel and timber coupes were leased out in the division and as they are well distributed were sufficient to meet local requirements. Some of the coupes in the Veligondas fetch very poor rates but are continued merely to meet local requirements. The village co-operative labour societies have been encouraged to buy these coupes and they purchased no less than 14 coupes during the year under report.

South Cuddapah.—In the Veligondas there are extensive unreserves and shrotriyam forests which supply the ryots' demands easily. In the Seshachellams, six fuel coupes and 15 improvement coupes supply the ryots' demand for agricultural implements, building materials, etc. The hut materials and fuel in these coupes are also sold at low rates to bona fide ryots. The contractors have their depots at Rajampet, Kodur and Settigunta and are bound to sell timber at the scheduled rates to the ryots. Besides, there is a depot at Rajampet railway station where the timber felled departmentally is stocked and sold to the public.

West Cuddapah.—Fourteen timber and one fuel coupes in the different ranges of the division were leased out to meet the rural demand for fuel and timber and the contractors were bound by agreement to sell them in the coupes at concession rates.

Water-supply.

67 In *East Kurnool*, several wells and tanks in grazing areas were cleared and improved and trial pits for new wells were dug with the object of improving the water sources in grazing area.

Yegikunta in Markapur reserved forest beyond E .N. Block 14 which was repaired during the year is reported to have proved a great boon to the surrounding villagers.

In *South Kurnool*, water troughs were constructed at Devagudipad, Bhuvaramannabhavi and Obulesinipenta at a cost of Rs. 184 to provide water for the cattle. The well at Chinnamipenta was deepened at a cost of Rs. 55 and the wells at Garella and the Koneru at Papiledu were repaired at a cost of Rs. 87 and a masonry cistern was constructed at Pachagundalu at a cost of Rs. 6.

In *North Cuddapah*, Chenchireddibhavi in Thurpukondas of Sidhout range was repaired at a cost of Rs. 26-3-2.

(4) Timber Transit Rules.

68. The Rules have on the whole worked satisfactorily.

East Kurnool.—Mittamedipalli was constituted as a checking station under timber transit rules from 1st April 1926.

(5) Jungle Tribes.

69. *Kurnool.*—The Assistant Chenchu Officer who works under the direct supervision of the District Magistrate (who is the Special Chenchu Officer) submits every year a detailed report on the work and conduct of these Chenchus. Hence this report gives only a brief review about the conduct of Chenchus and activities of the department in reclaiming these wild men.

Conduct of Chenchus.

Though the Chenchus are afforded every possible means of honest living, yet some find it difficult to overcome their love for crime. In West Kurnool the number of cases filed was 4 involving 10 persons against 11 cases involving 55 persons in the previous year. Of the 10 persons, 7 were sent to jail and 3 acquitted. Three cases related to offences under the Forest Act and one to the offence of voluntarily causing grievous hurt under section 325, Indian Penal Code. In East Kurnool the Chenchus of Nallaguntla committed a serious dacoity during day-time; two Chenchus of Regadikunta were sent to jail for theft and two more belonging to Chilkacherla who were suspected of having taken part in another theft, are directed to report their whereabouts to the police.

With a view to appoint a Chenchu headman and deputy headman for each gudem, for preventing crimes and giving them some official recognition, detailed information about their social organization was collected and Government in their Order Mis. No. 390, Development, dated 20th March 1926, have sanctioned the appointment of nine headmen on Rs. 12 each and nine deputy headmen on Rs. 8 each.

Works provided for Chenchus.

The works consisted chiefly of timber, fuel and bamboo fellings, minor forest produce collection, road repairs, cultural and regeneration operations, early burning, etc.; 57 Chenchus from the neighbouring gudems, viz., Chinna Mantrala and Maddipenta in the East division, and Sudem, Pangidi, Rudracode and Dulalapenta in the West division, were induced to leave their homes and to go and work in Isukagundam timber coupes in the South division and where there is a great scarcity of labour.

The Chenchus are allowed free grazing for their cattle which gives them scope to earn a little money by selling ghee and calves. Some of the better behaved Chenchus were also employed as forest guards and watchers in the department.

Works provided by the Special Chenchu officer.

(1) *Agriculture.*—It is reported that the Chenchus in the East division have shown a distinct eagerness to extend cultivation; but in the West division only the Chenchus of Indreswaram, Nagaluti, and Pecheruvu gudems showed a desire to do cultivation. Some more lands were assigned by the Collector to the Chenchus both in and outside the reserved forests. The Chenchus continued to receive loans in the shape of plough bulls from the District Forest Officers concerned. Casualties among bulls already granted were also replaced by grant of further loans.

(2) *Industries.*—There are industrial schools at four centres, viz., at Pecheruvu, Indreswaram and Bairluti in the West division and at Chilakacherla in the East division where carpentry, basket-making, etc., are taught to the Chenchu pupils. The pupils seem to be making slow but satisfactory progress.

The expenditure incurred and the revenue realized for each school are given below :—

	Expenditure.			Revenue realized.		
	RS.	A.	P.	RS.	A.	P.
Bairluti school	486	0	6	258	0	0
Indreswaram school	642	1	9	381	8	0
Pecheruvu school	416	15	3	413	0	8
Chilakacherla school	474	0	0	304	0	0
Totals ...	2,019	1	6	1,356	8	8

An attempt was made to introduce spinning and weaving in these schools, the Chenchus being induced to grow cotton for this purpose. But the attempt was a failure and had to be abandoned. Gardening was also attempted near some schools in Markapur taluk but the results so far were not encouraging.

(3) *Education.*—There were 15 schools as in the previous year manned by 10 trained and 5 untrained teachers. The number of pupils on the rolls on the 31st March 1925 was 284 boys and 140 girls while the number on the 31st March 1926 was 264 boys and 116 girls. The decrease was due to illness and early marriages of some boys and girls and also due to some pupils having migrated to other gudems with their parents. The pupils are being taught up to the IV standard and receive vocational training, in cart-building, and basket-making in the four industrial schools mentioned above. The girls continued to receive instruction in needlework in which they are making satisfactory progress. Six of the boys studying in the Markapur High School with the aid of Government scholarships discontinued their studies in the course of the year. Three boys have been recommended for scholarships to enable them to proceed to Atmakur Board High School for higher education next year on 1st July 1926. Six new schools have also been sanctioned to be opened in 1926–27. All schools are near Chenchu gudems and located in thatched sheds erected to accommodate the schools and schoolmasters respectively.

The cost of maintenance of schools has been as follows :—

	RS.	A.	P.
1. Capitation allowance to all teachers	608	0	0
2. Feeding charges	1,549	11	4
3. Cleaning charges	754	0	0
4. Purchase of books	77	12	6
5. Construction of new sheds	125	0	0
6. Repairs to sheds	63	2	0
7. Cost of clothing	649	14	0
8. Cost of furniture	17	14	0
9. Teachers' salaries	4,503	2	0
10. Supervisor's salary	930	0	0
11. Peon's salary	229	4	0
Total ...	9,527	11	10

The Conservator Mr. Wilson and Mrs. Wilson inspected the Pecheruvu boys' and girls' schools, respectively, on 30th April 1925 and the District Forest Officer Mr. K. R. Venkataramana Ayyar, inspected them on 24th August 1925, and they were all favourably impressed with the running of the schools.

From the above figures it will be seen that the Forest department has to incur a good deal of unremunerative expenditure to improve the condition of the Chenchus and to reclaim them with the object of enabling them to become respectable citizens and thus indirectly reducing crimes and increasing the safety of the surrounding villagers. The Chief Conservator in his Proceedings No. 250, Routine, dated 26th July 1926, addressed Government to relieve the Forest department of this burden. But they were not pleased to accept this suggestion.

(6) MINING AND QUARRYING.

70. *Anantapur.*—Four prospecting licences, one in Aligalavada reserve and its extension, two in Gunda reserve, and one in Hyarada Reserve Block (*c*) were granted during the year. For the quantity of 155 tons of old manganese ore given to the General Sandur Mining Company in the previous year, a royalty of Rs. 7-4-6 at nine pies a ton was collected during the year. A sum of Rs. 2,531-15-4 was also collected as rents and royalty.

South Kurnool.—The manganese mine opened previously in North Veligondas is working. An application for prospecting for copper in Jaladurgam reserve of Owk range was rejected. Two applications for prospecting for manganese in the North Veligondas are pending sanction.

West Kurnool.—The slab and building stone quarries leased out in the previous years on a five-year lease were worked up to December 1925. They were resold for another five years for Rs. 39,050 or Rs. 7,810 per year against Rs. 4,454 per annum for the previous lease.

West Cuddapah.—A licence to prospect for barytes was issued to one Mr. Nabi Sahib of Hindupur, Anantapur district. But the work was not started during the year.

(7) LIVE-STOCK.

(*a*) *Elephants.*

71. Two baggage elephants are maintained in the *West Kurnool* division and they are in good condition. They were also used for dragging timber in coupes of both the *South* and *West Kurnool* divisions.

(*b*) *Bulls.*

The two bulls in stock at the beginning of the year in *West Kurnool* were sold for Rs. 65. There are now no Government bulls in the division.

(*c*) *Buffaloes.*

Two buffaloes were purchased during the year in *South Kurnool.* They were used for supplying water to the subordinates in Gundlakamma range.

(8) VETERINARY ESTABLISHMENT.

72. Nil.

(9) SUITS.

73. No new civil suits were instituted during the year. The old one against the *tangedu* bark contractor, Vati Ibrahim Sahib, referred to in the previous year's Administration Report, ended in favour of Government, it having been decreed with costs by the

District Munsif of Vellore. The realization of the dues to the Department is under correspondence with the Collector of North Arcot.

(10) CONTROL OF UNRESERVED LANDS BY THE FOREST DEPARTMENT.

74. The general control of the unreserves of Bommilingam, Velagalapaya and Papinenipalli in the *East Kurnool* division continued to vest in the Forest Department.

(11) GENERAL.

75. Muskets and ammunitions have been supplied to some of the forest guards and foresters for self-defence. The musket of one forester in *Kurnool South* was stolen by some robbers but was subsequently recovered and is in the police custody pending disposal of the case.

Final orders on the recommendations made for grant of a pension to the mother of the late forest guard—Kasim Peeran murdered by Chenchus in the previous year in *Kurnool East*—were received and Government in their Order Mis. No. 302, Finance (Pension) Department, dated 16th July 1926, have been pleased to give her a life pension of Rs. 7-8-0 per month with effect from the 24th September 1925.

In *South Cuddapah*, the issue of shooting licences to local shikaries was practically stopped as the District Forest Officer is of opinion that the shikaries have been misusing them.

(11) COLLECTOR'S REMARKS.

76. The following forwarding endorsements were made by Collectors when transmitting District Reports:—

Collector of North Cuddapah.

Forwarded to the Conservator of Forests, Second Circle, Bellary. I have been too short a period here to be able to offer any criticism.

Collector of South Cuddapah.

Forwarded. At present I am in the position of a learner. The report is very interesting. It calls for no special remarks from the point of view of a layman.

Collector of Anantapur.

Forwarded. The decrease in acquittals from 34·73 per cent to 11·88 per cent is satisfactory. I have no other remarks to make.

Collector of Bellary.

Forwarded.

I have no remarks to make.

F. R. MADAN,
Acting Conservator of Forests, Second Circle.

BELLARY,
12*th August* 1926.

ANNUAL ADMINISTRATION REPORT OF THE FOREST DEPARTMENT

FOR THE

YEAR ENDING 31st MARCH 1926

THIRD (WORKING PLANS) CIRCLE

INTRODUCTION.

1. The Working Plans Circle was constituted in accordance with G.O. No. 1008, dated 14th July 1925, on 1st May 1925.

2. The administrative and executive staff sanctioned for the Circle was—

One Conservator of Forest.
Five Working Plans Officers.
Three Assistant Working Plans Officers (Provincial).
Ten Rangers.

3. The sanctioned clerical staff consisted of one head clerk, one draftsman, three clerks and one typist in the Conservator's office and one clerk for each Working Plans Officer.

4. Soon after the commencement of the year under report the Forest Research Officer, or, as he should more properly be termed, the local Silviculturist, with his staff, was attached to the Working Plans Circle.

5. Previously, since the creation of the appointment in November 1919, the Silviculturist has worked directly under the control of the Conservator of Forests, Sixth Circle.

6. A considerable amount of time at the beginning of the year was taken up in organizing the office and getting together as much of the sanctioned staff as was available for transfer to the Circle.

7. A suitable building for the office was obtained on the Mount Stuart Hill at Ootacamund.

8. Most of the sanctioned Clerical establishment was obtained from the old III (Madras) Circle, as also was a good deal of the necessary furniture, stationery and office fittings.

9. Two rooms in the Office building were allotted to the local Silviculturist who moved his clerks and records into them soon after the beginning of the year.

CHAPTER I.

DETAILS OF WORK UNDERTAKEN.

1. The preliminary organization of the Circle was not complete until the south-west monsoon was firmly established, which fact precluded the commencement of field work on the West Coast until the autumn.

2. It was, however, possible to start work elsewhere, and the following details will show what was actually carried out during the year under report.—

Plotting of topographical and cover maps.

3. Messrs. Davis and Cariappa, who were posted to the Circle as Working Plans Officer and Assistant Working Plans Officer, respectively, had, prior to the formation of the Working Plans Circle, been attached to cruising parties, which were organized by the Chief Forest Engineer—Mr. Martin, and which worked under the suprevision of the Logging Engineer—Mr. Pearce.

4. During the monsoon months the work of plotting maps and tabulating data from statistics collected by these cruising parties was carried out under the supervision of Messrs. Davis and Cariappa by their rangers and foresters who were provided with office accommodation in the Working Plans Circle office.

5. In August, when Mr. Pearce went on leave, Mr. Davis took over his work. Thereafter, for the rest of the year Mr. Davis and Mr. Cariappa continued to work under instructions from the Chief Forest Engineer whilst retaining their appointments of Working Plans Officer and Assistant Working Plans Officer, respectively.

6. The plotting work, referred to above, related to cruises carried out with the help of the improved Abneys level and trailer tape in the Nalkur reserve of South Mangalore division, the Someshwar forest of North Mangalore division, the Nellicutha reserve of Nilambur division, and the Chenat Nair reserve of Palghat division.

Revision of the Punachi Working Plan in South Coimbatore division.

7. This work, in an area which is not subject to such torrential rain as is experienced in the forests further to the west, was carried out by Mr. Coode—Working Plans Officer—during the months of the south-west monsoon.

8. The revised Working Plan, which relates to an area of 2,612·6 acres, has been sanctioned and is in the hands of the printers.

9. The main provisions of the plan involve an experiment in the natural regeneration of teak, rosewood and *Pterocarpus Marsupium* in a mixed forest with moderate rainfall (48·8 inches) where concentrated artificial regeneration of teak had been tried but did not appear likely to justify the expense involved.

10. Briefly, the forest is one which, after countless years of disastrous fires, has been fairly successfully fire-protected during the last 10–20 years.

11. The result is that woody undergrowth is gradually suppressing a rank growth of grass. In places, the present undergrowth is of an evergreen type with an open crop of deciduous trees, largely of the three valuable species mentioned above, in the upper storey. One-sixth of the whole area has been allotted to Periodic Block I and the experiment will consist of cutting and burning the evergreen undergrowth in the hopes that regeneration of the valuable species will be obtained, some from seed dormant in the ground and some from seed to be shed by the trees in the open, upper storey which will be removed gradually as regeneration appears.

12. At the same time, root wounding of rosewood trees, to stimulate the production of root suckers, will be undertaken, and the remainder of the forest, not in Periodic Block I, will be rigorously fire-protected.

Selection and mapping of areas fit for clear-felling and regenerating artificially with teak during the next two or three years in the Mount Stuart forests of South Coimbatore division.

13. Largely owing to the frequent changes of the District Forest Officer in South Coimbatore, due to transfers, in recent years, difficulty has been experienced in coming to satisfactory and timely decisions in selecting the exact area to be clear-felled and regenerated each year under the provisions of the Mount Stuart Working Plan.

14. Though the complete revision of the Working Plan, which may shortly be necessary, was not considered to be so urgent as some other works, it was realized that it would be of great help to the District Forest Officer and the Conservator if areas fit for teak were selected and mapped several years in advance of felling.

15. Accordingly, Mr. Krishnaswami—Assistant Working Plans Officer—made a detailed examination of that part of the forest which lies east of the tram line and north of the Tunacadavu river. Areas considered fit for teak were surveyed and a large scale map of the whole area examined was prepared in the Working Plans Circle office.

Revised scheme for Working Blocks II and III of the Snowdon Working Circle of the Nilgiris Plantation Working Plan.

16. It had been realized for some time that that portion of the Snowdon forest on the Nilgiris from which the fuel supply for Government House, Ootacamund, has chiefly to be met did not yield anything like the volume of fuel that the land was capable of producing.

17. A considerable portion of the area in question was carrying a crop of *Acacia dealbata.*

18. When the current working plan was prepared there was still some possibility that this crop might be required for the production of tanning bark.

19. No great demand for this product having arisen, it was decided that the whole area in question should be clear-felled and planted up with *Eucalyptus globulus.*

20. Mr. Hicks—Working Plans officer—prepared a scheme for giving effect to this decision and it has been sanctioned.

A brief scheme for the conversion of Bingham and Brooklands Hunt Coverts to Eucalyptus hardwoods.

21. The same officer—Mr. Hicks—prepared a short scheme for converting the Brooklands and Bingham *Acacia dealbata* plantations on the downs near Ootacamund into plantations of hardwood Eucalyptus.

22. From time to time during the last 15 years experimental plantations of various species of Eucalyptus which might prove eminently suitable for use as timber, as opposed to fuel, have been made on the Nilgiris. These experiments have shown that three species (*Eucalyptus pilularis*, *Eucalyptus punctata* and *Eucalyptus eugenioides*) appear to be very promising.

23. Previous plantations of these hardwoods have usually been on old, grass, downs land on which it is known from experience with *Eucalyptus globulus* that Eucalyptus will not grow so well as it will on land which has been under forest. As the old, straggling growth of *Acacia dealbata* in Brooklands and Bingham was of no great value and was not required, the opportunity has been taken of trying the abovementioned three species of hardwood Eucalyptus on forest land, after the clear-felling of the Acacia.

Revision of the Working Plan for the Bolampatti valley of Palghat division.

24. Mr. Mahony—Working Plans Officer—is in charge of this work.

The field work has been completed and the writing of the plan had just been commenced at the close of the year under report.

25. Apart from one or two unsuccessful attempts a good many years ago, an innovation, so far as the Madras Presidency is concerned, will be made in this Plan is that one Working Circle will be devoted to an attempt to regenerate the forest artificially in conjunction with field crops, which will be grown by Irulars, a local jungle tribe.

Revision of the Working Plan for the Walayar forest of Palghat division.

26. At the beginning of the dry weather, Mr. Hicks, who completed the work on the Nilgiris, referred to above, during the rains, was deputed to revise the Walayar Working Plan.

27. The field work has been completed and the writing of the plan will be undertaken during the coming rains.

28. Prior to the formation of the Working Plans Circle, Mr. Currie had written a preliminary report dealing with the suggested lines of revision.

29. For many years forest officers have discussed the correct treatment for this forest which lies in the Palghat gap of the Western Ghats. It is a mixed deciduous forest containing, in parts, a large proportion of teak. Up to about 1920 it was worked as coppice with standards. There was but little doubt that this was not the best method of treatment, and the question to be decided was whether to treat the forest under the simple coppice method or to convert it gradually into timber high forest.

30. Briefly, the decision come to has been to grow a pole crop by the Simple Coppice method, on a thirty-year rotation.

31. Here again an innovation will be started, in that in one working circle on the west, where the rainfall is greatest and the soil best, the felling refuse and weeds will be collected into small heaps on the top of places where bamboo clumps have stood and will be burnt in the hot weather. As soon as the rains break teak stumps from a nursery will be planted in blanks between the coppice regrowth of other species, thus increasing the proportion of teak in the new crop.

Preparation of a Working Plan for the Malabar-Wynaad.

32. Before the formation of the Working Plans Circle, Mr. Currie made a reconnaissance of the whole of the Wynaad forests, including those of the Nilgiri-Wynaad, to be mentioned later. Mr. Currie wrote a detailed and valuable report with suggestions for the lines on which a working plan should be prepared.

33. At the commencement of the field season of 1925 Mr. Coode was deputed to be Working Plans Officer, Wynaad, with Mr. Krishnaswami as his Assistant Working Plans Officer.

34. A detailed inspection of the Wynaad forests was made by the Working Plans Conservator, in the company of these two officers, and he wrote an inspection note indicating the lines which he considered that the new plan should follow and showing, roughly, the extent to which he considered that Mr. Currie's proposals should be adopted or modified.

35. During the Working Plans Conservator's tour in Wynaad he received intimation that the Chief Forest Engineer had just sent up proposals which involved the purchase of a saw-mill for the Wynaad division which would require some 120,000 cubic feet of timber a year. The saw-mill was sanctioned almost as soon as the proposal was sent up.

36. The Chief Conservator has passed orders on the Working Plans Conservator's proposals and has laid down the lines on which the Working Plan is to be prepared, with a view to meeting the requirements of the saw-mill.

37. In the meantime the Working Plans Officer and Assistant Working Plans Officer have selected areas in Begur range and Chedleth range which are considered to be fit for regenerating artificially with teak whilst at the same time they contain now a reasonable amount of mature timber and are situated advantageously as regards probable saw-mill sites.

38. In these areas 100 per cent enumerations of all timber above 2 feet girth are now in progress.

Revision of the Nilgiri-Wynaad (Mudumalai) Working Plan.

39. The Working Plan prepared for these forests by Mr. Cox fell into abeyance some few years ago, at a time when it was thought that clear-felling and artificial regeneration with teak ought to be substituted for the improvement fellings prescribed in the working plan.

40. Since then, various experiments, the majority of them with clear-felling as their basis, have been carried out.

41. In recent years, early burning has also been substituted for the rigorous fire protection prescribed by Mr. Cox.

42. Mr. Hicks has recently been deputed to revise Mr. Cox's Working Plan.

43. After an inspection of part of the forest in the rains of the year under report the Working Plans Conservator drafted proposals which amounted more or less to a reversion to Mr. Cox's prescriptions with certain modifications and additions which included a proposal to confine clear-felling and artificial regeneration with teak to the very best areas, which are known to be very limited in extent.

44. A subsequent and more extensive inspection during the current fire season with the District Forest Officer and the Working Plans Officer has led the Working Plans Conservator to consider that no areas really are undoubtedly good enough to justify clear-felling and artificial regeneration, under the existing conditions of soil and rainfall.

45. A further opinion which the Working Plans Conservator has formed regarding the pros and cons of early burning in the Nilgiri-Wynaad is that, in these particular forests, fire protection, even though only partially successful each year, is more beneficial, silviculturally, than deliberate burning.

46. His opinion is based on the fact that the salvation of these deteriorated forests is bound, in the long run, to depend on the suppression of the grass. With fire protection such undergrowth as Lantana, Eupatorium, Randia and other shrubs undoubtedly tends to suppress the grass, though the gradual ingress of these species is admittedly very slow.

47. When early burning is done, the Working Plans Conservator has observed, on the spot, that these undergrowth species which, in the particular area in question, are highly beneficial, are found to be burnt back, and that the final suppression of the grass is bound to be retarded year after year. The Chief Conservator has passed orders on the proposals of the Working Plans Conservator and has laid down the lines on which the revision of the plan is to proceed.

Revision of the Working Plan for the forests of Nilambur valley.

48. Preliminary work in connexion with the revision of Mr. Bourne's Working Plan for Nilambur, the provisions of which will terminate in 1928, was started towards the end of the year under report by Mr. R. S. Browne—Working Plans Officer.

49. Before the appointment of the Working Plans Officer an inspection of the Nilambur plantation was made by Sir Peter Clutterbuck, Inspector-General of Forests, in company with the Chief Conservator, the Conservator, Sixth Circle, and the Working Plans Conservator. The main point under consideration during this inspection was the question of introducing an underwood in the plantations, a matter about which the Chief Conservator wished to have the advice of the Inspector-General.

50. After the tour the Inspector-General of Forests wrote a note embodying his proposals, and the Chief Conservator ordered the Working Plans Conservator, in consultation with the Conservator, Sixth Circle, to prepare a scheme for underplanting which could be brought into force at once, without waiting till the working plan is revised. The Chief Conservator's orders contained detailed instructions as to what had to be done and the Working Plans Conservator embodied these instructions in a scheme which has since been sanctioned. Broadly speaking, all the Nilambur teak plantations which are less than 40 years of age are to be undersown, or underplanted, with *Hopea parviflora* or, in low-lying, moist places

unsuited to *Hopea*, with *Lagerstroemia Flos-Reginae*. Under planting with the broad-leaved Mahogany (*Swietenia macrophylla*) will also be done to the extent of 10 acres a year.

51. In plantations over 40 years old, but which are not likely to be clear-felled during the next few years, fast growing evergreen undergrowth species are to be introduced. *Gl cosmis pentaphylla* and *Bambusa arundinacea*, as well as other species, are likely to be tried under this prescription.

52. As regards the actual revision of the working plan, little beyond a detailed inspection of the plantations and natural forests and a general study of Mr. Bourne's plan by the Working Plans Officer was possible before the end of the year under report.

53. Very shortly after the close of the year the Working Plans Officer was in a position to make certain preliminary proposals which were supported by the Working Plans Conservator and sent up to the Chief Conservator, whose orders thereon have since been received.

54. The proposals provide for an attempt to regenerate artificially, with species other than teak, those areas in the Plantation Working Circle in which teak has failed. Such areas were allotted by Mr. Bourne to a Miscellaneous Felling series and the treatment which he prescribed for them, but which has never been carried out, was that which it is now proposed to undertake.

55. Another prescription of Mr. Bourne's, which has not been carried out, was the Selection felling of mature timber in those portions of the Conversion Working Circle not under regeneration during the period of his plan. The Working Plans Officer proposes that Selection fellings on these areas should now be undertaken. He considers that in view of our very incomplete knowledge about the raising of crops of species other than teak it is advisable not to clear-fell and attempt to regenerate any more areas in the Conversion Working Circle until the failed teak areas of the Miscellaneous felling series in the Plantation Working Circle have been fully stocked with suitable species.

CHAPTER II.

Silvicultural Research and Experiments.

1. As the local Silviculturist's annual report is issued as a separate publication, no attempt is made here to record statistics or to give a detailed list of all the plots which are under observation.

2. During the year under report, in addition to the maintenance of plots already in existence, several new experiments were inaugurated.

3. At Nilambur, the whole of Compartment 120, comprising some 30 acres which were originally planted with teak in 1854, has been taken over for research purposes. It is intended to fence half of the area and to leave the other half unfenced. The area will be treated permanently as an experimental garden or nursery. The first thing to be studied will be the raising of a second rotation crop of teak, since efforts to do this successfully are far from encouraging up to date and even when a complete restocking has been obtained, as was done by Mr. Bourne in the first area of original teak plantation clear-felled in Aravillykava, there is a distinct indication that the growth is not up to the standard of that shown in the yield tables.

4. A portion of the compartment has been clear-felled and a new teak crop will be raised in conjunction with field crops. Experiments with other species will also be carried out in this compartment during the coming rains but the details will find place, more properly, in next year's report.

5. Observations made during the year, notably in a research plot laid out in 1924 in the Walluvashery Block at Nilambur, lead to the belief that for the raising of artificial crops, other than teak, such as Rosewood, *Lagerstroemia lanceolata*, *Terminalia tomentosa* and probably others it may be advantageous, silviculturally, not to go to the expense of clear-felling the old crop but simply to remove only the saleable trees and then, after burning the debris, to raise the new crop under the partial, broken shade of such trees as remain.

6. With a view to verifying this possibility, a series of 5-acre plots has been laid out near Top Slip in the Mount Stuart forests of South Coimbatore division.

7. It has been noticed on many occasions and in various localities that areas of deciduous forest which have been cleared and burnt for a number of years, will, if subsequently fire-protected, appear, in course of time, to be carrying a very fair stock of deciduous tree species. Instances of this can be seen on abandoned fire lines in the Wynaad. With a view to studying the suitability of annual burning during a series of years for obtaining natural regrowth on a large scale, three plots were laid out in the clearing round Mount Stuart bungalow. These plots, each half an acre in extent, were weeded and the growth on them was enumerated and studied.

8. Two of the plots were on areas on which it was known that the regrowth had been cut back and burnt annually for not less than five years. On neither of these plots was the stocking anything like complete, though a certain number of rather badly grown specimens of valuable species such as Teak, *Terminalia* and Rosewood did exist.

9. The third plot was close to the rest-house where it was known that clearing and burning had been done off and on for a much longer series of years than in the case of the other two plots.

10. Here the stocking was practically complete and the proportion of valuable species was high. On paper, the results were most encouraging but a close study of the crop showed that nearly all the shoots sprang from old, high coppice or pollard stools and that the actual number fit for producing a High Forest timber crop was very small.

11. In connexion with the preparation of the working plan for the Malabar-Wynaad, an experiment in growing *Terminalia tomentosa* from seed is being made, since it is said that previous attempts in this district have failed, although very little difficulty is found in raising this species from seed at Mount Stuart.

12. A series of experimental plots were laid out in the Karianshola forest of South Coimbatore division in order to discover how best to stimulate natural regeneration in a typical evergreen forest. The experiment aimed at removing the cover in the various plots in different degrees, from the degree in which only the undergrowth is cut up to that in which a complete logging felling is carried out, as in Chenat Nair reserve.

13. One of the chief problem awaiting solution is the correct silvicultural treatment of simple coppice coupes after felling, more especially in areas where there is a fairly good rainfall and where the regrowth of climbers and weeds, such as lantana, is luxuriant.

14. With a view to studying this problem, the local Silviculturist is conducting experiments in Compartment 11 of Singampatti Block in the Bolampatti valley of Palghat division. This area was clear-felled between April 1925 and March 1926. By the spring of 1926 the portion first felled had the appearance of an impenetrable thicket of lantana and thorny climbers under which was all the old felling debris. Half of the area will be weeded and tended. The other half of the area was handed over to Irulars, the local jungle tribe, for burning and tuckle cultivation. An attempt to raise a forest crop in conjunction with the tuckle will be made under the direction of the Silviculturist.

CHAPTER III.

Administration.

1. Mr. A. Wimbush held charge of the Working Plans Circle from the time of its formation to the end of the year.

2. During the course of the year the following officers were attached to the Circle as Working Plans Officers and Assistant Working Plans Officers :—

Mr. Wrench,	Mr. Coode,
,, Davis,	,, Mahony,
,, Browne,	,, Krishnaswamy, and
,, Hicks,	,, Mr. Cariappa.

Mr. Wrench was transferred before taking up the field work allotted to him. The other officers were still attached to the Circle at the close of the year.

TOURS.

3. The Conservator visited all the localities in which work was undertaken, in the case of several of them on more than one occasion. He toured in parts of all the divisions in the Sixth Circle and also in Coorg and South Coimbatore.

HEALTH.

4. As was to be expected, the health of the Working Plans establishment left much to be desired. With the exception of Mr. Wrench, who was only attached to the circle for a very short time, all the Imperial and the Provincial officers in the circle had malaria at some time or other, though only in the case of three officers were the attacks frequent or of long duration.

5. Most of the seven rangers attached to the Working Plans parties have not been in the Circle very long. At the time of writing it is known that two of them at least are away on sick leave.

A. WIMBUSH,
Conservator of Forests,
Third (Working Plans) Circle.

OOTACAMUND,
19th July 1926.

ANNUAL ADMINISTRATION REPORT OF THE FOREST DEPARTMENT

FOR THE

YEAR ENDING 31st MARCH 1926

FOURTH CIRCLE

CHAPTER I.—CONSTITUTION OF STATE FORESTS.

1. Alteration in Area.

1. *Reserved forests.*—During the year eleven square miles were added due to final settlement and adoption of correct boundary.

One hundred square miles were excluded due to—

(1) disforestation of areas in close proximity to Village cultivations, the adoption of correct boundary and assignment of land to the depressed classes for cultivation, and

(2) transfer of areas of old Chingleput division to Nellore division.

Reserved lands.—The increase from 28 square miles to 46 square miles is due to certain areas notified under section 4 in the South Salem division.

2. Forest Settlement.

2. Six blocks with an area of 11 square miles were finally settled during the year.

3. Demarcation.

3. Fifty-eight miles were permanently demarcated during the year.

4. Forest Surveys.

(a) *By the Survey of India.*

4. Nil.

(b) *By the Madras Survey.*

5. The resurvey of the Atur and Salem Revenue taluks of Atur range, East Salem division, was commenced during the year.

(c) *By Departmental Survey.*

6. The survey of fuel coupes was as usual done departmentally.

CHAPTER II.—MANAGEMENT OF STATE FORESTS.

1. Regulation of Management.

Preparation and control of regular working-plans.

(*a*) *Preparation.*—A working plan for all operations except sandalwood was sanctioned for the South Vellore division during the year. A scheme for providing hosts for sandal and for planting suitable timber species in places where the soil was good on the Horsleykonda hills was sanctioned in the Chittoor district; also a tentative scheme for 348 square miles of fuel area and another scheme for 252 square miles of bamboo area in North Vellore and a provisional plan for the treatment of the Kurumbapatti palmyra block in Central Salem were sanctioned during the year.

(*b*) *Control.*—The prescriptions of the following working plans were generally adhered to except for small deviations :—

(1) Tentative scheme for all fuel and bamboo coupes in Gudiyattam range and the old Working Plan for Bamboo coupes in the other ranges in the North Vellore division except the cultural operations prescribed for the Palar Plantations and Banavaram reserve which were not carried out as being unremunerative.

(2) Sandalwood working plan for the Javadis and Yelagiris in the South and West Vellore divisions.

(3) Working plan for all operations except sandalwood sanctioned for South and West Vellore divisions.

(4) Preliminary working plans for the sandal areas in East, Central and South Salem divisions.

(5) Sandalwood, Bamboos and Grazing working plans in the Chitteri range, East Salem division.

(6) Working plan for the Kavaramalai Working Circle and a revised scheme for the 10 bamboo series sanctioned by the Chief Conservator, and a revised scheme for bamboo areas and another for six fuel series sanctioned by the Conservator in the Central Salem division.

(7) The sandalwood tending scheme and the tentative schemes for working the lower slopes of hill ranges for fuel, sanctioned by the Conservator, in the South Salem division.

The prescriptions of the Hosur sandalwood working plan for the seven felling series in the Denkanikota range, North Salem division, were suspended as in the previous year owing to the prevalence of spike as the whole staff was fully engaged in the extraction of spiked trees.

The other working plans mostly for fuel and small timber chiefly in Central Salem division were either obsolete or not worked

for want of demand. Steps are now being taken to prepare a consolidated working plan for all workable areas in the newly-constituted Central Salem division.

To prevent smuggling of fuel from Kurumbapatti, Pannikaradu and Atur ghat reserves which are near the market in Central Salem, a scheme by forming a coupe near Adivaram was tentatively sanctioned under which permits were issued departmentally at one anna per head-load, half the value of the permits being credited to Government towards seigniorage and the other half deposited in the Co-operative Bank for the benefit of the smugglers so as to keep them from pilfering. The scheme proved unworkable and unsatisfactory and was therefore given up under Conservator's orders.

2. Communications and Buildings.

Form 30 shows the length of the roads constructed and the expenditure incurred on new works and repairs to roads, buildings and other works.

(a) *Roads and Bridges.*

The cost of new works and repairs during the year was Rs. 5,595 and Rs. 12,445 against Rs. 3,275 and Rs. 11,632 respectively in the previous year. The new works done during the year were the constructions of bridle-path from Veppalamarathu Sadaram to Thandayankollai and Kinnikolam-Thellai road in North Vellore, a branch road from the Komattiyeri-Patrakad road to the Patrakad Hill rest-house in South Vellore; a culvert at 5 miles, 5 furlongs and a stone wall at the eighth mile on the Gillman road, a road from Kavalur to Vasanthapuram over a distance of four miles in West Vellore; construction (gravelling) of 13 miles of Kadaiyampatti road in Central Salem and the construction of a cart-track from Mavar-Thammampatti road to join the Periyakombai-Poosanikuli bridle-path. The alignment of the following roads was also undertaken during the year:—

West Vellore.—(1) The alignment of Rajapalayam-Sherkanur road;
(2) Alignment of cart-track from Kuttathur to connect the Gillman road.

North Salem.—(1) Alignment of Sameri-Siddapuram road.
(2) Do. Aiyur-Gulhatti road.
(3) Do. bridle-path from Agaram to Bettamugalalam.

(b) *Buildings.*

The expenditure on new buildings and the maintenance of existing ones (including the pay of watchers) during the year was

rupees 14,305 and Rs. 15,268 against Rs. 11,575 and Rs. 15,372 respectively in the previous year. The important new buildings constructed were—

(1) *Chittoor.*—Construction of sheds for three forest guards at Mamandur and two tanah sheds at Palmaner.

(2) *North Vellore.*—Completion of Pernambet subordinates' quarters and an out-house to the Alleri inspection shed.

(3) *South Vellore.*—Construction of out-houses and kitchen to the Range officer's quarters at Santhavasal.

(4) *West Vellore.*—Completion of the extension of the sandalwood godown at Tirupattur and Range officer's quarters at Alangayam.

(5) *North Salem.*—Besides completing the new works of the previous year, the following new building works were undertaken during the year:—

(a) Construction of an inspection shed with out-houses in Kodagarai.
(b) Do. do. at Gulhatti.
(c) Extending the sandalwood godown at Denkanikota.
(d) Conversion of the rear veranda of the District Forest office into a room.

(6) *South Salem.*—Construction of subordinates' quarters at Silambur.

(c) *Miscellaneous.*

The cost of new works and repairs was Rs. 843 and Rs. 2,587 against Rs. 988 and Rs. 823 in the previous year. The chief items of new works undertaken were—

South Vellore.—A trial boring for a well at Amerdi and lining the well near the Komattiyeri rest-house.

West Vellore.—Construction of a well in the Tirupattur rest-house compound.

The other items relate to the improvement of Mamandur sanitation scheme in Chittoor and the improvement of the existing sources of water-supply in all the divisions.

3. Protection of Forests.

(a) *General protection.*

The following statement shows the offences registered during the year:—

	1925-26.	1924-25.	
Injury to forests by fire	240	353	Decrease.
Unauthorized felling	9,218	10,372	„
„ grazing	2,173	2,699	„
Other offences	599	405	Increase.
Total ...	12,230	13,829	

The decrease under injury to forests by fire, which was in all the districts except West Vellore and East Salem, is reported to be due to early burning operations, and to the co-operation of forest villages in return for the grant of rewards to them for successful

protection. The decrease under unauthorized felling was chiefly in North and West Vellore, North, East and Central Salem. North Vellore takes credit for driving the habitual offenders to honest agricultural pursuits such as groundnut cultivation, etc., during the year, the season having been favourable, while West Vellore and North Salem claim that the decrease is due chiefly to vigilance on the part of the subordinate staff. On the other hand, East Salem puts down the decrease as due to the migration of a large number of people of the offending classes to Ceylon, etc., during the year, and to the handing over of ryots' forests to panchayat management. But Central Salem reports that the temporary revival of the permit system for fuel in a coupe at the foot of the Shevaroys to meet the demands of the poor people who lived mostly by illicit removals in the previous years coupled with the vigilance of the patrol party helped to put down crimes during the year. The decrease under unauthorized grazing was in North and South Vellore, East and South Salem and was due to the opening of more closed areas to grazing in North Vellore, vigilance of the subordinates and panchayatdars under the forest village system in South Vellore and East Salem, and to the efficient check exercised over permit-holders grazing cattle in the reserve in South Salem. The increase under other offences was in North and West Vellore, Central and South Salem, and due to the reporting of more cases by the Revenue Department in the three Vellore divisions and in the two Salem divisions.

Cases brought to trial.

Year.	Number.	Convictions.	Acquittals.	Percentage of failure.
1924–25	5,239	4,006	1,233	23·53
1925–26	3,958	3,189	769	19·43

The decrease was chiefly in West Vellore and East Salem divisions, and due to the special steps taken for the apprehension and production of the accused before the court.

A sum of Rs. 87,290 was collected as compounding fees during the year against Rs. 87,538 in the previous year. The instructions issued in G.O. No. 1990, Revenue, dated 13th June 1910, were generally observed in fixing compounding fees.

Patrol System.

In Central Salem, a patrol party consisting of a forester and three forest guards worked in the Salem range for putting down illicit removal of manure leaves from the reserves on the Bodamalai

hills as well as illicit removal of fuel for jaggery boiling near Vellalagundam and Pakkanad reserves and another patrol party consisting of a forester and two guards worked in the Shevaroys South range to put down illicit removals from Pannikaradu and Kurumbapatti reserves. The party in Salem Range is reported to have exercised timely check while the party in Shevaroys South is reported to have not done much good work in making their presence felt by the people. The system was not in force in other divisions.

Rewards.

A reward of Rs. 15 was disbursed to one forest guard and four Malayalis for the successful detection of an important timber theft case in the Polur-Javadis in South Vellore, Rs. 115 was disbursed in North Salem for the detection of three sandalwood theft cases to two informants, four forest guards and a watcher, one village munsif, one Prosecuting Sub-Inspector of Police, and three others. Rupees 36 was disbursed to two private persons, a police constable and a forest guard in Central Salem for help rendered by them in the detection and conviction of the accused in a sandalwood theft case and Rs. 35 was disbursed at the close of the year in South Salem for the detection of a sandalwood theft case to the informant and beat subordinates.

(b) Protection from fire.

The total area attempted to be protected from fire during the calendar year 1925 was 4,010 square miles of which 3,941 square miles were successfully protected at a cost of Rs, 7,334. Form 32 shows the area attempted to be protected, cost of protection and the area actually protected. Appendix A shows the details and the causes of fire.

Special protection.—The area which was under special protection was 1,260 square miles as compared with 1,140 square miles in the previous year. An area of 1,231 square miles was successfully fire protected during the year against 1,030 square miles in the previous year, the percentage of failure being 2·30 against 1·50 in the previous year. The increase which is small is due to the unfavourable seasonal conditions during the year.

General protection.—The area under general protection was 2,749 square miles against 2,618 square miles in the previous year the percentage of failure being 1·44 against 0·12 in the previous year. The area burnt was 40 square miles against 30 square miles in the previous year.

Early burning.—The early-burning operations were conducted in all ranges in areas considered to be exposed to special danger in the Chittoor district. It was also done on a small scale in North Vellore and in sandalwood sample plots in North Salem. The latter

which was a mistake has been pointed out to the District Forest Officer. In Central Salem, the operation was conducted over an area of 11 square miles and the result was reported to be satisfactory and effective. The system was not followed in other divisions where it was not called for.

(c) Protection from cattle.

There was an increase in the number of cattle impounded, only in North and Central Salem divisions and a decrease in the remaining divisions. Appendix B shows details. The increase was due to a large number of cattle illicitly grazed in reserves on account of drought in North and Central Salem divisions. The decrease is due to more reserves now being under panchayat management in Chittoor, to the opening of more closed areas to grazing in North Vellore, vigilance on the part of the panchayats under the forest village system in Tiruvannamalai, Gingee and Polur Ranges in South Vellore, to the inefficiency of the protective staff in dealing with illicit rescue cases in West Vellore, and to the increased activity of the staff to put down illicit grazing in the remaining divisions.

(d) Protection against injuries from natural causes.

Prickly-pear.—The area cleared of noxious growth round Mamandur village was maintained and fresh clearing of prickly-pear was done at a cost of Rs. 998-8-0 in Chittoor. No measures were undertaken in other districts to eradicate this pest owing to the prohibitive cost.

Lantana.—A sum of Rs. 1,003 was spent in eradicating lantana in the Horsleykonda reserve in Chittoor, and Rs. 267 in North Salem in clearing lantana in Ayyur, Jowlagiri, Pane, Gulhatti, Nyamasandiram Agraharam reserves and Sameri unreserve in connexion with the sandalwood operations. Lantana is also prevalent in the Kudimaduvu reserved forest in East Salem, on the Shevaroy plateau in Central Salem and in the Sholamathi reserve in portions of the Musiri-Pachamalais and in the Jambuthu reserve of Namakkal-Kollimalais in South Salem, but owing to the financial stringency, no attempt was made to eradicate this pest.

Creeper cutting.—This was done in all sandalwood areas in the sandalwood-producing divisions and also in timber improvement coupes in West Vellore. Creepers were also cut in the coupes to be exploited at the time of standard marking.

Spike.—This is dealt with under research and experiments.

Bison.—Bison continued to damage young sandal on the Javadis, particularly in the special tending areas in the South Vellore division.

Wild animals.—No remarks.

CHAPTER III.—SYLVICULTURE.

SECTION 1.—FORMATION AND REGENERATION OF FORESTS.

(i) *General Progress of areas under regeneration.*

There are no areas under any special system for regenerating any particular species in the circle.

(ii) *Establishment of reproduction of working plan or schemes (with Form 35–A).*

(*a*) Mainly natural.

Chittoor.—The natural reproduction of sandalwood was good in Chamala and Palmaner Ranges and prolific in Horsleykonda plateau. The same may be said of *Pterocarpus Marsupium and* Red Sanders in the Chittoor reserve, the latter being specially good in a portion of Muduvaripalle tope in Palmaner range and the former in Talakona and Chamala reserved forests. The reproduction of *Shorea talura* was fair along the banks of Talakona stream in Chamala range and that of *Shorea tumbuggaia* good in the Tirumalai hills. *North Vellore.*—Regeneration under seed-bearers in the Banavaram and Chenur reserved forests was fair. Coppice shoots in all felled areas thrived fairly well. *South Vellore.*—Coppice reproduction, especially of *Acacia sundra* and *Chloroxylon swietenia* in all the felled coupes, was satisfactory. *West Vellore.*—The regeneration of sandal on the Yelagiris, Tenmalais, Javadis and in Maharajagadai, Neralakota and Bargur was fairly satisfactory, and the same was the case with *Tectona grandis*, *Pterocarpus Marsupium*, Rosewood and *Terminalia tomentosa* on the higher slopes of the Tenmalais. The natural reproduction of *Chloroxylon swietenia* and *Albizzia amara* in Burgur and Nandibanda reserved forests is said to be good. Reproduction by coppice is reported to be good in all the felled coupes. *North Salem.*—The natural reproduction of *Hardwickia binata* continued to be satisfactory in the reserved forests adjoining the Cauveri, while that of sandal was good and of *Melia indica*, *Albizzia Lebbeck*, *Hardwickia binata* and *Terminalia Arjuna* fair in Dharmapuri Range. Sandal is spreading naturally in the plateau portion of Bevanurmalai and along the banks of Chinn-Ar. *East Salem.*—Reproduction by seeds and coppice of all the important species was on the whole fairly good. On the other hand, *Central Salem* deplores the lack of natural regeneration of the principal species in view of the present over-grazed condition of most of its reserves. This is not so, however, in *South Salem* where our principal tree, sandalwood, is reported to be spreading down to the foot of the hills while it is thriving elsewhere in its original homes and especially along streams at the foot of the Pachamalais. Natural regeneration of *Dalbergia latifolia*, *Pterocarpus Marsupium*, *Anogeissus latifolia* and *Albizzia odoratissima* is also reported to be good on the Kollimalais, and in the upper slopes of

the Pachamalais. The establishment of young regeneration of Vannangu (*Pterospermum rubiginosum*), *Chloroxylon Swietenia*, *Albizzia odoratissima*, *Albizzia amara*, *Acacia leucophloea* and *Melia indica* forms the special feature of the plain reserves elsewhere and of the forests of Udaiyarpalaiyam. In all the fuel series reproduction from coppice continued to be satisfactory.

(*b*) Mainly artificial.

North Vellore.—Some sowings of seeds done free of cost in the plantations was partially successful. *South Vellore.*—Seeds of sandal, *Gmelina arborea*, *Pterocarpus santalinus*, *Anogeissus latifolia* and *Pongamia glabra* were dibbled in the felled fuel coupes and the results were very poor. Sowing of sandal seeds in the special tending area had been entirely unfruitful, due chiefly to the indifferent quality of the seeds sown *North Salem.*—Sowing operations were carried out in Jowlagiri, Thalli, Aiyur, Manchi and Udaidurgam reserved forests in Denkanikota range and in the special nurseries in the compounds of certain rest-houses. The result was a failure in the Anchetti range owing partly to the selection of unsuitable areas for sowing and to want of timely rains. Bamboos, *Chloroxylon Swietenia*, *Melia indica*, sandal and other trees were sown in the different reserved forests in the Dharmapuri range. Nurseries were opened in Woddapatti, Galigattam and Marandahalli reserved forests. Sandal seedlings from the nurseries were transplanted in the compounds of the rest-houses at Hoganakal and Pennagaram and in Woddapatti and Galigattam reserved forests. A sample plot was opened in the Galigattam reserved forest according to the prescription of the new sandal working-plan, but so far as could be seen the result was a failure owing, it is alleged, to want of rain. *Central Salem.*—In the Shevaroys North range, 3,68: sandal seedlings were transplanted in various reserves, but only about 25 per cent of them have survived till the close of the year. Sandal seeds were also sown over 50 acres in the Papireddipatti sandal coupes 1 to 5, but the percentage of germination has been poor. Similar sowings of sandal in two other ranges and of seeds of *Albizzia odoratissima* and *Azadirachta indica* amidst prickly-pear jungle in parts of Shevaroys North range have generally proved a failure.

An attempt at planting *Acacia decurrens* and blue gum in 4 acres in the Sanniyasimalai reserve was made towards the close of the year, but it is too early to state the result. *South Salem.*—The large blank spaces at the foot of the outer slopes of the Pachamalis were divided into series of 25 to 30 annual coupes in each beat and sown with the seeds suited to the soil. The result was very promising. Seeds of indigenous species were sown in the felled coupes of Udaiyarpalaiyam Cassan forests. Fifty per cent of the cashew seeds

are thriving well. The condition of the rest is not so encouraging. The *Acacia planifrons* seeds dibbled in 200 acres of Paithur reserved forests are reported to have given fair results.

(*c*) Afforestation.

None during the year under report.

(iii) *Plantations and other forms of regenerations not under working plans or schemes (with Form 35-B).*

North Vellore.—The planting done in Ambur plantations and the sowing of sandal seeds under Mr. Wood's scheme in Palamadi, Pichanur and Satghur and Ambur section were partly unsuccessful, and the sowings done in other sections of Odugathur and Vellore ranges and Rangampet of Gudiyattam proved a failure. *South Vellore—The Amerdi Plantation.*—A brief description of this plantation as well as Muttakadu is given in the administration report for the year ending 31st March 1924. No new area was taken up during the year for planting. The work carried out consisted in Amerdi in replacing casualties by planting red sanders, and sissoo seedlings and cuttings, and clearing the thorny growths in some of the compartments of the old plantations. In the Muttakadu plantation, about 15 measures of *acha* seeds were sown in a 5 acre plot. Germination was fairly successful and the condition of the seedlings will be watched. Weeding and mulching were done for all the seedlings below 1 foot high. The number of survivals in the experimental plantation at the end of March 1926 is shown below :—

Pterocarpus marsupium 219, *Gmelina arborea* 89, *Albizzia Lebbek* 29, *Acacia Ferugina* 187 and *Hardwickia binata* 923.

In Central Salem, no improvements were made during the year in the plantations at Kurumbapatti.

(iv) *Tending.*

General tending was done in all sandalwood coupes except in Denkanikota sandal felling series where the staff was fully occupied in extracting spiked sandal trees ; climbers and creepers were cut and sandal trees freed from overhead shade. In *South Vellore* new special tending areas were selected and fenced in all the coupes in which dead and dying trees had been extracted in the previous year. In West Vellore, special tending operations were carried out along with fencing in all the coupes over an area of 1,421 acres as per working plan.

(v) *General.*

Chittoor.—The area cleared of lantana growth in Horsleykonda reserve was dibbled in with seeds of tree species. The success of the sowings ranges from 5 to 10 per cent. The areas sown in previous years were redibbled to replace casualties. In *North Salem*

experiments were conducted in Jowlagiri regarding the best method of artificially reproducing sandal and certain timber species and the results are watched. One thing, however, appears to have been established and that is that sandal seeds under normal conditions of storage can retain their vitality for quite one year.

The drought reported last year continued during the year especially in the whole of the civil district of Salem which accounts for the failure of efforts at afforestation of blanks.

Section 2.—Tending of the growing stock.

In Chittoor, improvement fellings for the benefit of red sanders and other timber yielding species were not carried out as they were not considered necessary. The improvement felling in timber areas as per prescriptions of the working plan was not carried out during the year in *West Vellore.* In the sandal areas everywhere in the Circle, the general tending of sandalwood was, as usual, carried out. In *North Vellore*, the coupes in the Palar river-side plantations were felled under the system of improvement fellings by which all dead, dying and malformed trees were removed.

CHAPTER IV.—EXPLOITATION.

(*a*) System of management.

The total area under working-plan during the year was 2,634 square miles and the various sylvicultural systems in force are detailed below:—

	Area in square miles.	Percentage to the total area under working-plan.
Selection method	498	18·91
Simple coppice	736	27·94
Coppice with standards	70	2·66
Method of improvement fellings... ...	722	27·41
Unworked, or other fellings	608	23·08
Total area under working plans ...	2,634	100·00

(*b*) Exploitation by Departmental Agency.

The chief item of departmental extraction was sandalwood. A quantity of 348¾ tons was sold at Tiruppattur against 272½ tons in the previous year, and 87 tons at Vellore against 160 tons in the previous year. The average price realized was Rs. 1,166 per ton at Tiruppattur and Rs. 1,127 at Vellore against Rs. 1,250 and Rs. 1,171 respectively in the previous year. The increase in the total quantity sold in both the depots as compared with the quantity sold in the previous year is small. The fall in price in the current year is due to the dullness of the market and also perhaps to the sales in this circle having been held subsequent to the bigger sales in Coorg and Satyamangalam.

Timber.—Improvement fellings, were carried out on a small scale in *West Vellore* as per provisions of the working-plan, but the timber felled and stacked in the forest could not be sold for want of demand. In *North Salem*, 1,000 cubic feet of timber were extracted for sale to the public and for departmental buildings. In other divisions, small quantities were extracted for departmental building purposes.

Fuel.—Two hundred and twenty-three cubic feet of fuel were extracted in *North Salem* by the vernacular training school for the manufacture of charcoal. In other divisions a small collection was made from clearing lines. This was partly used for burning bricks required for the departmental buildings and partly sold.

Bamboos.—A small quantity was extracted in *Chittoor*, *North Vellore and North Salem* for departmental use.

Minor Forest produce.—About 9,000 cubic feet of *Dodonæa viscosa* twigs were collected departmentally in *Chittoor* for supply to the Deputy Port Conservator at Madras.

Three hundred and twenty-three quarters of divi-divi pods were collected from the plantations free of cost for sale in *North Vellore*. One thousand and eighty-three measures of nux-vomica seeds were collected in *South Salem* and sold with the stock of last year for Rs. 70.

(*c*) Exploitation by purchasers.

Except in the cases referred to in the previous paragraph, fuel and bamboos were as usual extracted by contractors who purchased the coupes standing and the collection of minor forest produce was also leased out to contractors. The total outturn from all classes of forests by all agencies is compared with similar details of last year in the following statement:—

Year.	Timber in thousands of cubic feet.	Fuel in thousands of cubic feet.	Bamboos.	Gross value of minor forest produce including grass and grazing.
			RS.	RS.
1924-25	905	2,429	91,265	4,42,454
1925-26	895	1,969	1,39,654	4,92,756

Timber.—The difference is small.

Fuel.—The decrease was in *Chittoor*, *North Vellore*, *East* and *South Salem*. In *Chittoor*, it was due to the introduction of the "Sindewahe" furnace which burns "Megass" for sugarcane juice boiling, on account of which the year's coupes could not all be sold. In *North Vellore*, it was due to the transfer of several reserves to the land revenue department for management by panchayat, while the impending transfer to panchayats of certain reserves in *East Salem* and the absence of demand for certain fuel coupes in the *South Salem division* have accounted for the decrease in these latter divisions.

Bamboos.—The increase was in Chittoor, the three Vellores, and Central and South Salem divisions, and was due to one more kist falling due during the year in West Vellore than in the previous year and to better prices realized at the sales on account of keen competition among the bidders in the other divisions.

Grazing.—The increase was in Chittoor, South and West Vellore, East and Central Salem. The enhancement of the rate of grazing fees accounts for the increase in Chittoor, while the other divisions ascribe it to increased demand for grazing on account of favourable season and to greater vigilance on the part of the protective staff.

Minor Forest Produce.—The increase which was in Chittoor, North and West Vellore, North Central and South Salem was the result of disposing of green leaf manure by coupes to the highest bidders in South Salem and of better prices obtained for all classes of minor forest produce generally in the other divisions.

In North Vellore, 175½ tons of hay were removed by the Military Grass Farm Department from Banavaram reserve and the royalty of Rs. 351 at Rs. 2 per ton was adjusted. There was clamour from the ryots for opening the reserve to grazing, but as the Military Grass Farm Department depends on this reserve for its whole Madras requirements, their request was not complied with (G.O. No. 909, Development, dated 25th June 1926).

In South Vellore, only three fuel coupes in Tiruvannamalai range were leased out to Co-operative Societies during the year at the average rate obtained in previous years in accordance with the policy laid down in paragraph 6 of G.O. No. 1478, Development, dated 4th November 1922. These three coupes as well as the four arrear coupes of the previous year were worked during the year.

Grazing.—Of the total area of reserved forests and reserved lands, 91·85 per cent was opened to grazing against 88·95 per cent in the previous year. The incidence of grazing in the several districts of the Circle is given below :—

Divisions.	Acres.	Cow units.	Number of acres per cow unit.
Chittoor	442,240	110,504	4·00
North Vellore	312,960	74,617	4·19
South Vellore	291,840	74,424	3·92
West Vellore	237,440	64,519	3·68
East Salem	349,440	64,928	5·38
North Salem	308,480	44,393	6·94
Central Salem	247,040	60,967	4·05
South Salem	249,600	50,238	4·96
Total ..	2,439,040	544,590	4·48

There is increase in the number of cattle grazed during the year as compared with the previous year. The explanation given above for the increase in grazing revenue holds good here also.

(*d*) EXPLOITATION BY RIGHT AND PRIVILEGE HOLDERS.

In North Vellore, the Malayalees of Thellai, Arasampattu and part of Athiyur reserved forest had the usual grazing concession at three annas per cow unit in return for the satisfactory protection of forests committed to their charge. Under the Thellai Hill Village system Rs. 90 collected for the forest year 1924-25 was refunded to the 'Urans' as a reward for the protection of the forests, according to the conditions of the agreement. In South Vellore, as in the previous year, the system of free grazing of cattle by the Malayalees on the Javadis on a deposit of three annas per cow unit and the distribution of separate rewards to them for the successful protection of reserves against fire continued during the year. In some instances, however, certain Malayalees abused the privilege of carrying knives into the reserves to cut creepers infesting sandal trees by hacking bamboos to feed their cattle on the leaves. The system of refunding grazing fees either in whole or in part or not at all under the Forest Village system, according as the protection of the forest was satisfactory, not satisfactory, or bad, was in force in Tiruvannamalai and Gingee ranges and Allialamangalam reserved forest of Polur range and it worked satisfactorily. In East Salem, the grazing of the cattle of Malayalees on the Chitteris and Periyakalroyans on an initial deposit of three annas per cow at the commencement of each grazing year and refunding the same to them at the close of the year in return for the satisfactory protection of the reserves continued to work satisfactorily. In Central Salem, free grazing was allowed in the Sanniyasimalai reserve for 150 head of cattle of the adjoining Malayalee villages in return for the protection of the reserve from fire, and a portion of Jarugumalai reserved forest was thrown open to free grazing and free removal of leaves by the Erumaipalayam and Udayarpatti villages according to the terms of the forest settlement. In South Salem, the rights granted to the villagers at the settlement in V. Kanapadi and Palamalai extension reserved forests were availed of by the actual patta owners whose claims were admitted at the settlement and free permits were issued for 271 cow units. In Gundur and Ariyurshola reserved forests free permits were issued for 328 cow units.

(*e*) EXPLOITATION BY FREE GRANTEES.

The quantity and value of produce removed under the head are given below. The free grants were made chiefly from unreserves for rebuilding houses destroyed by fire. The usual free grant of 10 tons of firewood for the 'Masimagam' and 'Kanthri' festivals was made from the Pichavaram reserve in East Salem division.

Thirty-nine thousand one hundred and fifteen cubic feet of gravel were removed by the public works and local fund contractors for Government and local fund works. Free removal of grass was allowed from closed areas except plantations and certain reserves in North Vellore.

—	Timber in thousands of cubic feet.	Value.	Fuel. In thousands of cubic feet.	Fuel. Value.	Bamboo value.	Grazing.	Other minor forest produce.	Total.
		RS.		RS.	RS.	RS.	RS.	RS.
Right holders ..	..	..	..	..	..	337	15	352
Free grants ..	58	7,445	..	45	314	75	222	8,101
Total ..	58	7,445	..	45	314	412	237	8,453

CHAPTER V.—FINANCIAL RESULTS.

The following statement shows the financial position of the year under report compared with that of the previous year and the average of the preceding quinquennium :—

—	1925-26.	1924-25.	Average of the preceding quinquennium.
	RS.	RS.	RS.
Revenue	* 14,56,165	14,31,899	13,75,241
Refunds	24,314	19,733	1,16,840
Net ..	14,31,851	14,12,166	12,58,401
Expenditure.			
52-A. Capital	24,211	15,250	2,39,222
B. Conservancy and Works	1,48,231	1,37,179	
C. Establishment	5,36,170	5,92,867	5,51,635
Total expenditure ..	7,08,612	7,45,296	7,90,857
Surplus ..	7,23,239	6,66,870	4,67,544

* Excludes Rs. 1,485 relating to other Circles as explained at the foot-note of Form No. 40.

The increase was chiefly under bamboos, grazing and minor forest produce and due to reasons given in Chapter IV. There was increase of expenditure under 52-A. Capital and b. Conservancy and Works by Rs. 8,961 and Rs. 11,052, respectively, and decrease by Rs. 56,697 under c. Establishment as compared with that of last year. The less expenditure during 1924-25 and 1925-26 as compared with the average of the preceding quinquennium is chiefly due to the exclusion of expenditure of Forest Engineering Branch.

The various contributions to the gross receipt of Rs. 14,56,165 are detailed below :—

	Per cent.	
Major produce, Forest department.	40·34	(This includes 34·62 per cent from sandalwood.)
Major produce, Revenue Department.	7·18	
Grazing, Forest department.	15·59	
Grazing, Revenue Department.	1·55	
Bamboos, Forest department.	9·99	
Bamboos, Revenue Department.	·03	
Minor Forest produce, Forest department.	8·30	
Minor Forest produce, Revenue Department.	8·33	
Miscellaneous items ...	8·69	
Total ...	100·00	

Under 52-A. Capital and b. Conservancy and Works :—

Per cent.	
56·88	was spent on exploitation.
40·64	was spent on upkeep and improvement of forests.
2·48	was spent on miscellaneous items.
Total. 100·00	

The important variations are explained below :—

RECEIPTS.

(i) *By Government Agency.*

Sandalwood.—There was increase of revenue during the year as compared with the sanctioned estimate by Rs. 57,085 and decrease by Rs. 42,372 as compared with the actuals of last year. The increase is due to the greater quantity of sandalwood extracted during the year than estimated, and the decrease is due to the fall in price during the year.

The variations under other heads are small and call for no remarks.

(ii) *By purchasers.*

	RS.	
Timber ...	— 15,382	This is a fluctuating item the chief source being darkhast tree value collected by revenue officials and so calls for no remarks.

		RS.	
Firewood and charcoal.	—	14,444	The variations have been explained in Chapter IV.
Bamboos ...	+	47,216	
Grazing ...	+	3,343	
Minor forest produce.	+	40,635	
Confiscated drift and waifwood	—	4,550	This is a fluctuating item.
Miscellaneous ...	+	10,727	Due to the collection of rent on all residential buildings during the year under report and to the large number of offences that were compounded in East and Central Salem divisions.

Expenditure.

B. Conservancy and Works.

The important variations are explained below :—

		RS.	
1 (*d*)	+	3,343	Due to the extraction of 'spiked' sandal-wood trees on a large scale in North and South Salem.
II	—	2,282	Due to handing over of reserves to panchayats and consequent reduction of watchers.
VI	+	4,854	Due to the increased expenditure on Mamandur sanitation scheme in Chittoor and to the increased expend-iture on the repairs to roads and buildings during the year.
VII	—	3,911	Due to the carrying out of early-burning operations alone, instead of both early burning and fire-protection by a system of fire lines and patrols in Chittoor, to savings effected under rewards for fire-protection in the Vellore divisions, to less expenditure in North Salem, and to not carrying out fire-protection operations in Shevaroy South Range in the Central Salem.

52-A. Forests—Capital Outlay.

The important variations are explained below :—

		RS.	
Buildings ...	+	2,443	Due to the conversion of the sandalwood godown at Harur into Ranger's quarters in East Salem and to the construction of rest-house and out-houses at Denkanikota and inspection sheds elsewhere in North Salem.

C. Establishment.

		RS.	
Sowing and planting.	+	3,506	Due to less amount sanctioned under the corresponding head under ordinary works and consequent debiting of expenditure on ordinary works to capital expenditure.
Pay of officers—Non-Voted.	+	5,196	Due to the effect given to the order during the year under report of inclusion of pay of Indian Forest Service Officers appointed in India under non-voted and promotion of Mr. Abdul Qadir Sahib from Madras Forest Service to Indian Forest Service.
Pay of officers—Voted.	—	13,554	Do. and to the transfer of an Extra Assistant Conservator from the Direction office.
Establishment—Voted.	—	35,731	Due to the retrenchment of establishment and to the cost of establishments actually employed during the year being less than that of last year.
Travelling allowance—Voted.	—	2,084	Due to the non-payment of allowances to subordinates who were on leave, withholding of allowances of certain Foresters for want of minimum tour certificates and to the withdrawal of allowances to Rangers who maintained cycles and double-bullock carts instead of ponies.

The variations under other heads are small and call for no remarks.

CHAPTER VI.—RESEARCH AND EXPERIMENTS.

'Spike' disease in sandal continued unabated in the North and South Salem divisions, fresh attacks being common even in areas in which uprootal of the diseased trees had taken place in the previous year.

New attacks were reported during the year in Nyamasandiram Agraharam and Urigam reserves in the North Salem division, and two stray cases were reported, one in the Chittoor district on the borders of South Cuddapah (a single tree), and another in the Yelagiri Hills, North Arcot district (5 trees).

The uprootal of Spiked sandal trees was continued during the year, but it has been found impossible, with the staff and labour available to deal with *all* the diseased trees simultaneously everywhere.

A summary of observations and experiments carried out in connexion with 'spike' in North Salem has been published, after the close of the year, in the August number of the *Indian Forester* by Mr. Hart, the District Forest Officer.

The points for determination with reference to which the experiments are being carried out are detailed in the last year's annual report.

From the observations made and experiments carried out so far, the following general statements may be made :—

(1) Grafting spiked *Zizyphus oenoplea* on to healthy sandal and vice versa has failed to exhibit the disease in the healthy plant.

(2) Infection does not appear to take place by contact with spiked leaves or wood and there seems to be no justification for supposing that infection takes place above ground.

(3) The 'spike' manifests itself generally during the new flush of leaves, the incidence being at its highest between June and August.

(4) Planting out sandal in pits from which spiked trees have been extracted has given healthy plants.

(5) Seeds from spiked sandal trees produced healthy seedlings, but whether they will be immune from the disease cannot yet be stated.

(6) The disease affects, seedlings, saplings and trees. In the case of seedlings, the minimum size of those found is half an inch girth at base and 2½ feet high.

(7) Pruning of 'spiked' branches appears to delay the progress of the disease in the tree, but such pruned branches almost always throw out spiked shoots just below the cut portion.

(8) The time taken for a spiked tree to die varies from as low as two months to as high as 36 months.

(9) Natural regeneration of healthy sandal seedlings is not uncommon even in badly infected areas the seeds for which should obviously have been from spiked mother trees.

(10) Healthy sandal trees in close proximity to diseased ones have continued to remain healthy up to date which is nearly one year and six months.

(11) The result of the experiment carried out so far does not lend support to the suggestion made by the District Forest officer, North salem, that sandal is crosspollinated only from flowers of other sandal plants.

(12) Sandal seeds have been found to retain their germinating power for at least 18 months.

In the Chittoor district, the experiment to test the efficacy of thinnings in the sandal plantation at Venkatagirikota was continued, but no definite results have yet been obtained.

In the South Vellore division, the experiments in the bamboo sample plot were continued. The results of the observations and experiments were tabulated and sent to the Sylviculturist, Dehra Dun.

CHAPTER VII.—ADMINISTRATION.

During the year under report, the Chittoor district was added to this circle. The Government Order approving the reclassification of forests made by Mr. Whitehead subject to the views of the local committees was issued, by which all the reserves classed as 'Yellow' or 'Ryots' forests were to be transferred to the Revenue Department for forming panchayats. The committees' reports have already been submitted to the Chief Conservator and orders on them are awaited. As a result of this, proposals for the abolition of ranges and reconstitution of divisions in this circle were submitted after the close of the year and sanctioned.

Mr. T. Clear was in charge of this circle throughout the year.

Tours.—All the District Forest officers except Central Salem, spent the prescribed number of days in camp. The short touring in the single instance is due to changes in the personnel of the District Forest officer.

Inspection—By the Conservator—Office.—All the District Forest offices were inspected.

Forests.—Certain forests in South Salem and South Vellore were inspected and inspection notes submitted.

By the District Forest Officers.—All the range offices were inspected.

Sandalwood depots.—Sale depots.—The depots at Vellore and Tiruppattur were inspected by the District Forest officers concerned.

List of offices audited.—The accounts of all the District Forest offices were audited and the result was satisfactory.

Vernacular Training School.—The session for 1926 was continued to be held in the North Salem division from 1st February 1926 with thirty students on the roll.

The result of the 1925 session was that 8 students got first-class certificates and the remaining 20 second-class certificates.

Health of establishment including an account of the measures to improve sanitation and casualties.—Health of establishment is reported to be generally satisfactory except that of the staff stationed in Mamandur range of Chittoor district and the Javadis of West and South Vellore divisions and Kalroyans of East Salem division, which suffered from malaria.

Measures to improve sanitation were taken in South Vellore division where quinine and mosquito nets were supplied and good

drinking water provided. In the Mamandur range of Chittoor district, special steps are being taken to improve the sanitary conditions.

Casualties.—Mr. H. W. A. Gaudoin's sudden death after a day's illness is a matter of great regret. The Accountant of the West Vellore Division died of consumption. Two foresters and one guard died of malaria. One watcher in South Salem was murdered while on duty detecting an illicit grazing case.

CHAPTER VIII.—GENERAL.

1. Formation of and Management by Panchayats (to include Forest Village System).

(*a*) *Formation and Management of Panchayats.*—Most of the reserves classified as 'Ryots' forests on the basis of Mr. Whitehead's recommendation and sanctioned in G.O. No. 703, dated 12th May 1925, were transferred to the control of the Land Revenue Department during the year along with those for which panchayats existed already.

Forest Village system—(Class II Panchayat).

South Vellore.—Panchayats for class II forests in Tiruvannamalai and Gingee ranges and Allialamangalam reserved forest of Polur range were in force during the year. The working of the system was on the whole fair. The panchayatdars and Forest villages co-operated with the department and helped in the protection of blocks assigned to them. As usual panchayatdars were elected for the year at general meetings.

Concession.—Free removal of dead fuel by women and children was allowed as a concession in most of the blocks in Tiruvannamalai and Gingee ranges. No instances of abuse were brought to notice.

The removal of shrubs and non-woody species for green manure was availed of in a few blocks in Tiruvannamalai range and in almost all the blocks of Gingee range and Allialamangalam reserved forest of Polur range.

No instances of abuse were brought to notice.

The free removal of thatch grass was availed of largely in almost all the reserves.

Fuel Coupes.—Four coupes in Allialamangalam and 17 coupes in Gingee range were sold to panchayats and worked by them during the year. Besides these, 3 arrear coupes in Tiruvannamalai range were worked during the year.

Durbar day.—The seventh Annual Durbars at Tiruvannamalai and Thanipadi for Tiruvannamalai panchayats and the third Durbar

for the Gingee panchayats at Shanikulam and Turinjikadu and the first Durbar for Allialamangalam panchayats were held during the year. All the Durbars were well attended by panchayatdars and surrounding forest villagers. The District Forest Officer, the late Mr. H. W. A. Gaudoin, presided at all the Durbars and grazing refunds were as usual distributed. Some of the panchayats read reports on their work during the year and the usual petitions for further concessions were preferred. Several local officials, citizens, and Rao Sahib M.R.Ry. Seshachalam Ayyar Avargal, president of the Tiruvannamalai Co-operative Labour Union, were also present.

West Vellore.—Of the two panchayats, viz, Bargur and Kottur, that of Bargur was working during the year and that of Kottur had to be dissolved as the panchayats could not pay the coupe sale amount.

East Salem.—The system continued in Kallakurichi and Harur range reserves, but they were handed over to the Revenue Department partly at the end of the year and partly after the close of the year.

2. Measures for improving Local Supplies and Facilities for obtaining Forest Produce, Water-supply, Fuel, Manure Leaves, etc.

(*a*) *Improvement of water-supply in State Forests.*

(i) Boring Operations—*Nil.*

(ii) *Improvement of water-supply in grazing grounds.*—The following statement shows the number of wells and tanks constructed or repaired during the year.

District.	Number.	Cost. RS.
Chittoor	2 tanks	83
North Vellore	5 wells	167
South Vellore	8 tanks	1,200*
West Vellore	1 well	189
East Salem	3 tanks	216
North Salem	1 tank	237
	1 well	50
Central Salem	5 wells	226

* Including Rs. 467 contributed by certain panchayatdars.

(*b*) *The supply of forest Produce to meet the wants of the people.*—This was attended to generally by coupe contractors, panchayatdars and co-operative societies in South Vellore.

(*c*) *Supply of manure leaves.*—The question of supply of green leaf manure from class I reserves is under investigation and a detailed report on it was submitted to the Chief Conservator in this office C. No. 1058/25-A., dated 16th July 1926.

2. TIMBER AND SANDALWOOD TRANSIT RULES.

Timber Transit Rules.—This is in force only in Chittoor district.

Sandalwood Transit Rules.—Revised rules for Chittoor and North Arcot districts were sanctioned by Government in their Order No. 1823, Press, Development, dated 18th December 1925. Revised rules on the same lines for Salem, Trichinopoly and South Arcot districts have been sent up and orders of Government are awaited.

4. JUNGLE TRIBES.

The Malayali Hill Village System continued to be in force in Thellai reserved forest of North Vellore division, the Javadis of South and West Vellore divisions and the Chitteri and Kalroyans of East Salem division, and has worked, on the whole, satisfactorily.

The District Forest Officer, South Vellore, held the usual annual durbars for the adjustment of grazing revenue and distribution of rewards were held for successful fire-protection at Komattiyeri, Thongamalai, Nadanur and Amerdi. Complaints and grievances brought up by the Malayalis were inquired into. The Malayali schools opened at Komattiyeri, Veerappanur and Peria Ettipet are working satisfactorily.

On Darbar day at Komattiyeri, the District Forest Officer held sports for the children of the Komattiyeri and Veerappanur Malayali schools and distributed to them prizes and sweets during the year.

In West Vellore, it is reported that some villages of Tiruppattur Javadis have not yet availed themselves of the benefits of the system.

Proposals for extending the system in the Kalroyans of Central Salem and East Salem divisions have been called for from the District Forest Officers and will be submitted in due course.

5. MINING AND QUARRYING.

Mining.—In East Salem division, a mining lease for iron chromite and manganese was granted to M.R.Ry. Srinivasaraghavan for a period of 30 years over two blocks measuring 1,220·34 acres in Godumalai reserve (Board's Proceedings, Land Revenue, No. 1068, Miscellaneous, dated 30th May 1925).

In Central Salem division, leases have been granted to Mr. Gaudart for iron mining in Kanjamalai reserved forest and to Mr. E. K. Dickens for emery mining in Sanniyasimalai reserved forest.

Quarrying.—Local Fund contractors were allowed free removal of road metal from reserved forests for public works wherever they were required.

6. Civil Suits.

The result of the appeal preferred by the Zamindar of Bangarupoliem, Chittoor district, referred to in the last report is not yet known. The appeal of the coupe contractor in North Salem referred to in the last report is still pending.

7. Control of Unreserved Lands by the Forest Department.

The Land Revenue Administration of the Javadi Hill villages of Tiruppattur taluk of North Arcot district continued to be under the District Forest Officer, West Vellore. This system has again been ordered to be continued for another year, in G.O. No. 729, Development, dated 20th May 1926. The writer of this report has in his No. D. Dis. 1926-26-M., dated 11th July 1926, suggested the extension of the system to the rest of the Javadis.

The unreserves of the Pachamalais and Kollimalais in South Salem division continued to be under the partial control of the Forest Department in the matter of protecting and extracting timber, sandalwood and sale of minor forest produce.

K. R. VENKATARAMANA AYYAR.

ANNUAL ADMINISTRATION REPORT OF THE FOREST DEPARTMENT

FOR THE

YEAR ENDING 31st MARCH 1926

FIFTH CIRCLE

CHAPTER I.—CONSTITUTION OF STATE FORESTS.

Alteration in area.

Reserved forests.—The total area of reserved forests in the Circle rose from 3,243 square miles to 3,349 square miles due chiefly to the adoption of the Survey of India map area for the Gutialathur reserve in *North Coimbatore*. Small blocks measuring in all 392 acres were thrown out for extension of cultivation in all the divisions of the Circle except *Tinnevelly*.

2. *Reserved lands.*—219 acres were transferred to reserved forests.

Forest Settlement

3. The settlement of one block of ·343 square mile in *Madura*, referred to in last year's report, as pending, was completed during the year.

Demarcation.

4. Three miles in *Kollegal* and 14 miles in *Madura* were permanently demarcated for the first time at a cost of Rs. 171 and Rs. 1,478 respectively. Rs. 40 in *North Coimbatore* and Rs. 35 in *Tinnevelly* were spent in demarcating 4 miles of the new boundary between the disforested portion and the reserved forests. In *South Coimbatore* Rs. 225 was spent on clearing 15 miles of reserved boundaries. 2,226 miles were kept clear by subordinates free of cost.

Forest Surveys.

5. (*a*) *By the Survey of India Party.* None undertaken.

6. (*b*) The survey of coupes, regeneration areas, etc., was done as usual by the subordinates.

7. Reference maps were maintained in all districts and posted to end of 31st March 1926.

CHAPTER II.—MANAGEMENT OF FORESTS

1.—Regulation of Management.

Preparation and control of regular Working Plans.

(a) Preparation.

8. The working plan for the Punachi Working Circle in *South Coimbatore* was revised by the staff of the Working Plan Circle and the revision approved by the Chief Conservator in his Proceedings No. 284, Press, dated 18th December 1925.

A scheme for extraction of bamboos in Kurumbanur Working Circle in *Kollegal* and another for extraction of dead and spiked sandal trees for three years in two ranges of *North Coimbatore* were temporarily sanctioned by the Conservator.

(b) Control

9. The provisions of working plans and schemes were generally adhered to; but for want of demand three fuel and two bamboo coupes in *North Coimbatore* and eight fuel and four bamboo coupes in *South Coimbatore* remained unsold. Improvement fellings in Kallar and Jackanarai working circles were not carried out as these operations were not found to be necessary. Felling in one sandal coupe in *Kollegal* had to be again postponed for reasons stated in last year's report.

Communications and Buildings.

(a) *Roads and Bridges.*

10. There was an expenditure of Rs. 2,450 and Rs. 40,852 on new works and repairs respectively. The important new works carried out were—

Kollegal.—Construction of a bridle path 1 mile and 7 furlongs in length.

Tinnevelly.—Construction of a road 2 furlongs in length, acquisition of two sites for road construction and putting up a suspension bridge over the Serviar at Kodamadi.

11. The existing roads were in most cases kept in repair. Rs. 6,753 was contributed by the District Boards of Madura and Coimbatore for repairs to roads, and this sum was credited to "Revenue". The question of maintenance of roads in Madura towards which the Local Fund and the Forest departments had in the past been contributing, was discussed, and it was finally agreed that the Forest Department should contribute three-eighths and the Local Fund five-eighths. The arragements suggested were approved by the Chief Conservator and the District Board.

12. 77,820 c.ft. of timber were trammed to Topslip during the year by Government bulls and buffaloes against 125443 c.ft.

in the previous year. The decrease is due to the fact that all logs were directly carted from the felling area. The cost of feed and keep of tramming cattle fell from Rs. 20,938 to Rs. 19,614 due to the sale of all cattle about the last week of January 1926.

(b) *Buildings.*

13. Rupees. 3,455 were spent on new works and Rs. 12,820 on repairs. The important works that were executed were—

Kollegal.—Construction of subordinate lines at Mavathur, fencing the Cowdalli rest-house compound with euphorbia.

South Coimbatore.—Construction of kitchen sheds at Mount Stuart for the Madras Forest College.

Tinnevelly.—Completion of the Ranger's quarters and Range Office at Ambasamudram and construction of a forester's quarters at Papanasam.

(c) *Miscellaneous.*

14. The only new work was sinking a well in *Kollegal* and this has not been completed.

15. *Telephone.*—The proposal to take over the existing line from the Telegraph Department and to extend it to Pollachi was sanctioned by Government at the close of the year.

PROTECTION OF FORESTS.

(a) *General protection.*

16. The total number of forest offences reported during the year under review is compared below with that of the previous year :—

Cases	Fire.		Felling.		Grazing.		Other offences.		Total.	
	1924–25.	1925–26.	1924–25.	1925–26.	1924–25.	1925–26.	1924–25.	1925–26.	1924–25.	1925–26.
A. Taken into court ..	1	3	1,301	1,761	314	406	46	56	1,662	2,226
B. Compounded ..	..	2	2,206	1,794	630	539	131	155	2,967	2,490
C. Undetected ..	235	199	34	51	32	42	3	5	304	297
Total ..	236	204	3,541	3,606	976	987	180	216	4,933	5,013

The difference is small.

17. *Cases, old and new, dealt with during the year.*—Of the 3,137 cases (including old ones) taken into court 1,401 ended in conviction and 877 in acquittal, leaving 864 pending with Magistrates. Of the 877 cases acquitted, 682 related to cases in which compounding fees were paid in court. The punishments inflicted by Magistrates are on the whole reported to be adequate. Rupees 36,111 were realized as compounding fees against Rs. 35,855 in the previous year.

18. *Rewards.*—Rupees 150 was paid as rewards to subordinates and informers in *Kollegal, North Coimbatore and Tinnevelly.*

19. *Patrol system.*—The special patrol system was in force in parts of *Kollegal, Madura* and *Tinnevelly*.

Beyond the publication in the District Gazettes of the usual notice of warning to the villagers against setting fire to the reserved forest no other special measures such as closure, enhancement of grazing fees, etc., were taken.

(b) *Protection from fire.*

(Calendar year 1925.)

20. *Special protection.*—The system of early burning continued in most of the districts and larger areas were treated under this method in *Tinnevelly* and *Madura*. The area attempted to be specially protected during the calendar year 1925 was 433,695 acres against 242,311 acres in the previous year.

21. The total area burnt was 19,858 acres against 5,909 acres in the previous year, the percentage of successful protection being 95·4 against 95·9 in the previous year. The cost of protection was Rs. 4,009 against Rs. 3,808 in the previous year.

22. *General protection.*—The area under this heading was 1,639,559 acres of which 22,182 acres were burnt, against 1,762,559 in the previous year when 24,933 acres were burnt. The number and origin of fires are compared in appendix A.

23. The average cost per square mile of special protection and general protection was Rs. 5–15–0 and Re. 0–11–0 respectively per square mile attempted.

(c) *Protection against cattle.*

24. The provision made in the Udamalpet grazing scheme was found to be inadequate and on representation by the villagers to the Collector an extent of 431·10 acres was thrown open to grazing as a special case.

Two thousand five hundred and nineteen square miles of forests were open to grazing against 2,367 square miles in the previous year. Twenty-one square miles were kept open for part of the year in *Tinnevelly*. In addition 240 square miles were open to all animals except browsers for the whole year and 9 square miles for part of the year. Goats were excluded from all reserves. A belt of half a mile from the reserve boundary was open to free grazing in Teri Reserve. The total number of cattle thus grazed free was 3,233. The area is quite unsuitable for grazing and no grazing should, in my opinion, have been allowed.

25. *Incidence of grazing.*—The grazing incidence was—

	ACRES PER COW UNIT.
Kollegal	7·2
North Coimbatore	6·4
South Coimbatore	12·13
Madura	10
Tinnevelly	4·6

The number of cattle impounded was 18,539 against 21,783 in the previous year and 19,676 the average of 3 years ending with 1924–25. The decrease was in *North Coimbatore.*

(*d*) *Protection against injuries due to natural causes.*

26. In spite of the uprootal of all spiked sandal trees spike still prevails as badly as ever in practically all the sandalwood areas of *Kollegal and North Coimbatore.* To prevent its spread the uprootal of all affected trees is being continued. They are burnt after the scented wood if any is removed. Eight thousand four hundred and ninety-three trees in *Kollegal* and 1,210 in *North Coimbatore* were so treated at a cost of Rs. 459 and 72 respectively.

27. *Weeds and Climbers.*—In *Kollegal* the cutting of climber on sandal was done in sandal working circles over an area of 13,382 acres at a cost of Rs. 292–12–0. Weeding operations were carried out in the regeneration area of Kannikatti at a cost of Rs. 50 and in the teak plantation of 1922–23, 1923–24 and 1924–25 at a cost of Rs. 428–11–0.

28. *Prickly-pear, lantana and strobilanthes.*—In *South Coimbatore* Rs. 494 was spent on the experimental burning of lantana in an area of nearly 6,000 acres at Mount Stuart. Rupees 38–14–0 was spent in *Tinnevelly* for uprooting lantana prior to marking for thinning in the Kariar teak plantations.

29. *Damage by animals.*—Damage by wild animals was the same as in previous years. The small teak plantation at Vannathiparai was as usual destroyed by elephants.

30. *Damage by rain and floods.*—Nothing serious.

CHAPTER III.—SILVICULTURE.

SECTION 1.—FORMATION AND REGENERATION.

(i) *General Progress of areas under regeneration.*

31. Spike is as bad as ever in the *Kollegal and North Coimbatore* divisions. In all three divisions of Coimbatore Bambusa continues to flower and die. Fresh seedlings have already taken the place of the dead bamboos.

South Coimbatore.—An area of 260 acres in the Mount Stuart Working Circle was sown with teak after clear felling. The plants were smaller than usual on account of the late burn in 1924. Similar operations were conducted in 25 acres of the regeneration area of 1925–26 and in 24 acres of Periodic block I in the Punachi Working Circle; but the results were not good.

Madura.—Regeneration of *Hospea parviflora* is reported to be good along the banks of the Surliar in Cumbum Range.

In the evergreen forests of *Tinnevelly Filicium* and *Chikrassia* spring up readily when an opening occurs. *Balanocarpus* as usual seeded well in *Tinnevelly.*

(ii) *Establishment of re-production under working plans or schemes.*

(*a*) Mainly natural.

32. Nil.

(*b*) Mainly artificial.

33. *North Coimbatore.*—Sixty-six acres in Mannar sandalwood compartment were dibbled with sandal-seeds. Only a few seedlings survived in the plains due to drought.

South Coimbatore—Mount Stuart Working Circle.—Two hundred and sixty acres clear felled in 1925 were sown with teak and with *karumarudu* in swampy areas and the operation was completed during the year at a cost of Rs. 4,900. Subsidiary operations were carried out in the older areas at a cost of Rs. 465.

Two hundred and fifty-one acres were clear felled and burning was in progress at the close of the year. The cost incurred up to 31st March 1926 amounted to Rs. 6,721.

Punachi Working Circle.—Twenty-five acres clear felled in 1925 were dibbled with teak at a cost of Rs. 55. Twenty-four acres in Periodic block I were clear felled, burnt and dibbled with teak at a cost of Rs. 143. 1924 regeneration area was weeded at a cost of Rs. 100.

(*c*) Afforestation.

34. Nil.

(iii) *Plantations and other forms of regeneration not under working plans or schemes.*

35. *Plantations.*—Nil.

Other forms of regeneration not under working plan or schemes.—*Kollegal.*—The one chain sandal plots raised in the past were maintained and new ones added. In the former out of 24,628

seedlings 11,000 were found surviving and in the latter though the germination was good only 5,000 were found surviving at the close of the year. The failure is ascribed to drought and the seedlings not being watered the first year though the soil was kept wounded.

North Coimbatore.—Similar sandal extensions to those alluded to under *Kollegal* continued in this district also but the results were poor.

Madura.—Sandal seeds were shown departmentally in some of the reserves and 304 seedlings are reported to be surviving. Planting of mahogany was done in about two acres of the Alagarcoil reserve at a cost of Rs. 15.

Tinnevelly.—Dibbling of sandal-seeds was continued to be done by the subordinates and 302 seedlings are reported to be existing. Sowing of sandal in fuel coupes was discontinued.

(iv) *Tending.*

36. *North Coimbatore.*—Climber cutting in Mannar sandalwood compartment was done at a cost of Rs. 256.

South Coimbatore.—The prescribed weedings in the regeneration areas at Mount Stuart and Punachi were as usual undertaken.

Madura.—The sandal areas in the district were periodically tended by the subordinates free of cost.

(v) *General.*

37. *Kollegal.*—The natural regeneration of rosewood in the abandoned podus is reported to be very good. Seedlings 6 feet high are seen in the podu abandoned in 1921. In the younger podus a good number of varying heights up to 3 feet also occur.

Madura.—The cutting of climbers on standards and other useful species was as usual carried out by the subordinates free of cost.

SECTION 2.—TENDING OF THE GROWING STOCK.

Climber cutting for the benefit of sandal was done in *Kollegal* over an area of 13,382 acres at a cost of Rs. 293. Extraction and burning of spiked sandal trees to check the spread of spike was also continued. In *North Coimbatore* similar operations were conducted in Palamalai over an area of 4,000 acres at a cost of Rs. 169. Climbers on important species were as usual out by the subordinates free of cost.

CHAPTER IV.—EXPLOITATION.

System of Management.

(a) *Major Produce.*

38. The area under working plans, including the temporary schemes sanctioned during the year, was 1,422 square miles and the various sylvicultural systems in force are shown below :—

	Area in square miles.	Percentage to the total area under working plans.
Selection method	319	22·4
Simple coppice	380	26·7
Coppice with standards	143	10·1
Unworked or other fellings	580	40·8
Total ...	1,422	100·9

Dead sandalwood and that damaged by elephants in *Tinnevelly* were collected departmentally and sent to Vellore as usual for sale.

(b) *Minor Forest Produce.*

39. Bamboo coupes were leased as usual to contractors except in parts of *Kollegal* and *North Coimbatore* where removal on permits was permitted due to paucity of contractors. Honey and wax were collected departmentally in *Kollegal.* Elsewhere all minor forest produce was leased.

40. *Grazing.*—This was as usual controlled by permits.

Fodder grass was removed on permits in *Kollegal*, *North* and *South Coimbatore.*

Agency of Exploitation.

(i) *By Departmental Agency.*

41. *Major Produce.*—Timber and sandalwood were extracted as usual departmentally. The extraction of drag poles in *North Coimbatore*, conversion of spokes and felloes from top ends of teak trees felled in *South Coimbatore* and the collection of dead and windfallen trees in *Madura* were also done departmentally. One thousand nine hundred and twenty-five cubic feet of *Terminalia tomentosa*, 4,422 cubic feet of rosewood, 74 cubic feet of teak and 55 cubic feet of venteak were shipped to London for sale through the agency of Messrs. Howard Brothers.

42. *Minor Produce.*—The quantity collected departmentally is very small.

(ii) *By Purchasers.*

43. Fuel coupes in all the districts except *Kollegal* (where only two could be sold) were as usual leased out to contractors. The agricultural implements coupes in *Kollegal* and *North Coimbatore* and eight fuel coupes in *Kollegal* were worked under the regulated permit system.

44. *Minor Forest Produce.*—Bamboo coupes in all the districts except the coupes in two ranges of *Kollegal* and the collection of other minor produce except honey and wax in *Kollegal* were in the hands of contractors. The coupes in two ranges of *Kollegal* were worked under the regulated permit system.

45. *By right and privilege holders.*—The quantity and estimated value of the different kinds of produce removed by right and privilege holders and free grantees is shown in the following statement:—

—	Timber in thousands of cubic feet	Value.	Fuel in thousands of cubic feet.	Value.	Bamboos in value.	Grazing value.	Other minor produce value.	Total.
		RS.		RS.	RS.	RS.	RS.	RS.
Right and privilege holders.	..	..	..	..	..	1,583	829	2,412
Free grantees ..	1	587	2	266	332	434	14	1,633

Cattle up to 30 in number belonging to a temple in grazing block II of *South Coimbatore* were allowed to graze free. The Mudagars at Kadambarai and the Palayars at Thalinji were allowed to cultivate an extent of 1,712 acres and 33 acres respectively according to the rights granted at settlement. The Mudagars at Punachi who had a similar right absconded from the place having committed an offence under the Abkari Act by growing ganja.

In *Madura* the right to *free grazing* in the Ampthill Downs reserve was continued and the number of cattle so grazed was 6,333 as against 4,957 in the previous year.

46. *By Free grantees.*—The grants made were chiefly for rebuilding houses destroyed by fire and for erecting sheds on account of plague in a village in *North Coimbatore.*

47. *Outturn and sources of forest produce.*—The subjoined statement shows the total outturn of major produce and the total value of minor produce from all classes of forests by all agencies during the year as compared with that for the preceding year—

Agency of exploitation.	Timber and sandalwood in thousands of cubic feet.		Fuel in thousands of cubic feet.		Bamboos in value.		Minor produce including grazing in value.	
	1924-25.	1925-26.	1924-25.	1925-26.	1924-25.	1925-26.	1924-25.	1925-26.
					RS.	RS.	RS.	RS.
By Government agency.	184	134	8	4	62	43	2,162	7,777
Purchasers	243	298	2,701	3,033	32,031	29,961	2,22,926	2,30,505
Right and privilege holders.	..	..	..	..	..	..	1,751	2,412
Free grantees ..	17	1	2	2	2,462	332	187	448
Total ..	444	433	2,711	3,039	34,555	30,336	2,27,026	2,41,142

48. *By Government Agency—Timber.*—The increase under timber in 1924–25 was mainly in *South Coimbatore* due to the experimental extraction of timber with tractors by the Exploitation branch in addition to the usual quota from the district. The stopping of sandalwood extraction in Bargur range and of timber in coupe XIX of Punachi Range partly accounts for the decrease in 1925–26.

Minor produce.—The increase was mainly in *South Coimbatore* due to the crediting of the sale-proceeds of elephant tusks received from other districts.

49. *By Purchasers—Timber and fuel.*—The increase occurred in *Kollegal* where more agricultural implements and fuel were removed, and in *Madura* where arrear fuel coupes were sold. The outturn from dharkast lands also partly accounts for the increase.

Bamboos.—The decrease was chiefly in *North Coimbatore* due to the flowering and dying of bambusa.

Grazing and minor forest produce.—The increase was mainly in *Kollegal* due to the gradual recovery from the sudden fall in 1924–25 in consequence of heavy cattle mortality and to better prices realized for gallnuts, etc., in *Kollegal*, *North* and *South Coimbatore.*

50. *Free grants.*—The decrease under timber and bamboos was due to the fact that the year was a normal one and that there was no exceptional grant in 1925–26 as in 1924–25 for construction of houses destroyed by floods.

CHAPTER V.—FINANCIAL RESULTS.

51. The financial position of the year is compared with that of the previous year in the following abstract :—

	1924–25.	1925–26.
	RS.	RS.
Revenue	11,69,954	9,65,898
Deduct Refunds	— 5,058	— 3,380
	11,64,896*	9,62,518

* Includes Rs. 39,106, the revenue pertaining to 1923–24 adjusted in 1924–25.

	1924-25.	1925-26.
	RS.	RS.
Expenditure.		
(*b*) Conservancy and works including 52-A. Capital Outlay.	3,02,747*	1,51,776
(*c*) Establishments	4,06,282	3,86,606†
Total ...	7,09,029	5,38,382
Surplus ...	4,55,867	4,24,136

* Includes Rs. 3,001 the expenditure incurred in connexion with the British Empire Exhibition adjusted in North Coimbatore accounts.
‡ " Excludes Rs. 5,098 relating to, 8 (*c*)ii Research " shown in Form 80.

Sixty per cent of the revenue was derived from major produce, 14 per cent from minor produce, 14 per cent from grass and grazing and 12 per cent from miscellaneous items; 13 per cent of the expenditure was incurred on exploitation, 21 per cent on upkeep and improvement and 66 per cent on miscellaneous items.

52. *Receipts.*—The decrease was chiefly (1) under *Sandalwood* in *Kollegal* and *North Coimbatore* due to extraction being confined to spiked dead sandal trees only and to the fall in prices fetched at the auction and (2) under *Timber* in *South Coimbatore* owing to the exclusion of revenue from the Mount Stuart forests, now treated as a commercial concern. The revenue outstanding at the end of the year was Rs. 98,800, of which Rs. 17,839 fell due within the year. The estimated value of timber at sale depôts at the end of the year was Rs. 2,81,882 which exceeded the value of the stock at the end of the previous year by Rs. 61,765.

EXPENDITURE.

53. (*b*) *Conservancy and Works and Capital Outlay.*—The decrease was chiefly under timber. Feed and keep of live-stock and roads and bridges in *South Coimbatore* due to the exclusion of expenditure incurred on the Mount Stuart forests now treated as a commercial concern.

54. (*c*) *Establishment.*—The decrease was partly due to the reduction of 13 guards in *Tinnevelly* and partly to the exclusion of expenditure incurred on establishment employed in the Mount Stuart forests.

CHAPTER VI.—RESEARCH AND EXPERIMENTS.

55. *Kollegal.*—Of the 24,000 artificially raised sandal seedlings of previous years about 11,000 are reported to be doing well at the close of the year.

The *Acacia dealbata* seedlings of 1921 referred to in last year's report are flourishing and already reproducing themselves naturally in abundance.

It promises to be a very useful species for protecting the outer edges of sholas from fire and for covering grass hills and thereby suppressing inflamable coarse grass.

Madura.—Stump planting of *Acacia dealbata* was carried out to fill up blanks in the fire belt round the Kodaikanal pine plantations. Of the 21,453 stumps planted 7,620 were flourishing at the close of the year. The low percentage of success is attributed to insufficient rains during the south-west monsoon. Broadcast sowing of *Acacia decurrens* was carried out round the pine plantations during the north-east monsoon. The result will be reported later.

Tinnevelly.—The question of using eta (3 or more varieties of small bamboo) for making paper pulp is under investigation by Messrs. Martin and Raitt. Experiments are being conducted in the forest beyond Kannikatti, Tinnevelly, to ascertain the yield per acre and the best method of felling and regenerating these eta areas. Experiments so far indicate that clear felling is unsuitable just as it is in the case of other bamboos.

North Coimbatore.—Ten acres in Gutialathur reserve was clear felled as an experimental measure and the refuse burnt. It gave a net profit of over Rs. 30 per acre and from a silvicultural point of view the results are also said to be distinctly promising.

CHAPTER VII.—ADMINISTRATION.

56. Mr. A. Wimbush held charge of the circle till 19th May 1925 when he was succeeded by the writer of this report.

57. *Health of the establishment.*—Health of the establishment was normal. One forester, 4 guards, 4 watchers and one elephant jamadar died of malaria and one guard of consumption. A number of subordinates in *Kollegal* and *South Coimbatore* had to be granted leave on medical certificate.

SANITATION.

58. *South Coimbatore.*—Rs. 1,478-9-0 was spent in clearing around buildings at Topslip and Attakatti and Rs. 121-4-0 in purchasing mosquito nets for the subordinates working in Tunacadavu. The proposal to shift the headquarters of the Tunacadavu range to Topslip was not effected within the year as the buildings were not completed.

59. *Tours.*—The Chief Conservator of Forests inspected the Mount Stuart forests and the Punachi hills of the *South Coimbatore* district and the high wavy mountains in the *Madura* district.

The Conservator of Forests toured in all the divisions of the circle spending 305 days in camp. All the District Forest Officers except *Tinnevelly* spent more than the prescribed minimum in camp. The short touring in *Tinnevelly* is attributed to heavy rains in November and December 1925 and the consequent breaches on the roads and railways and partly to a change of District Forest Officers.

60. *Inspection of District Forest and Range Offices.*—The Conservator inspected all the District Forest Offices except *South Coimbatore* and the result was generally satisfactory. The District Forest Officers inspected all the range offices in their divisions and the result with the exception of one or two offices was generally satisfactory.

61. *District Forest Officers' Accounts Inspection.*—The audit staff of the Accountant-General's office inspected the accounts of all the divisions for 1924–25 and the result was fairly satisfactory in *North* and *South Coimbatore* and satisfactory in the other three divisions.

62. *Madras Forest College.*—Two students were deputed for the 1925–27 course.

63. *Vernacular Training School.*—No school was held in the Circle nor was any subordinate deputed to schools held in other circles.

CHAPTER VIII.—GENERAL.

(1) *Formation and management of Panchayats.*

64. The management of the Kaliavoor Reserve, 158·07 acres in extent, in *Tinnevelly* was transferred to the Public Works Department during the year and the Executive Engineer invested with the powers of a Forest Officer under clause (*d*) of section 59 of the Madras Forest Act. A proposal to form a panchayat for a portion of the Wolf Hill reserve was approved. Panchayats already working in *Madura* and *South Coimbatore* were handed over to the Revenue Department as per orders contained in G.O. No. 912 (Press), Development, dated 23rd June 1925.

There are 16 grazing panchayats working under the *forest village system* in *North Coimbatore*. Rupees 1,458 were disbursed as rewards for the protection of their blocks during 1924–25.

(2) *Measures for improving local supplies and facilities.*

65. *Manure leaf supply.*—Except in two ranges in *Tinnevelly* no leaf manure was removed from the reserves, the revenue realized thereby being Rs. 7,142. The question of putting a stop to this harmful practice is under consideration.

Supply of fuel and agricultural implements—Kollegal.—As there was very little demand for fuel coupes sold standing the system of working small village coupes under the controlled permit system for the benefit of the villagers continued during the year. The rate charged is 10 annas a cart-load and the felling is done by the villagers. The revenue realized from this source is reported to be Rs. 3,440 in 1925-26 as against Rs. 2,472 in 1924-25.

The scheme for the purchase and removal at seigniorage rates by the villagers of timber and agricultural implements from the agricultural implements coupes opened near important villages continued to be in force. Rupees 4,573 was realized in 1925-26 from this source as against Rs. 3,797 in 1924-25.

The concessions granted as a result of the Forest Committees' Conference in 1921 in the matter of grazing, penning, etc., were continued during the year.

North Coimbatore.—Five small timber coupes in Satyamangalam range were worked under the regulated permit system for supply of small timber, fuel and agricultural implements to the plains villages at low rates. There was no demand for three such coupes opened in Talamalai range as the villagers preferred stealing their requirements from reserves or unreserves.

South Coimbatore.—Spokes and felloes converted from the top ends of trees felled departmentally in the Mount Stuart Working Circle were offered to the public for sale at the Pollachi sale depot. Brake poles were cut and sold departmentally from the forests of Punachi range. One agricultural implement coupe was opened in Udamalpet range and the implements sold at a nominal rate of one anna for each implement cut.

Madura.—The demands of the villagers were as usual met by the coupe contractors in accordance with the terms of their agreements.

Tinnevelly.—Permits for the removal of babul trees for agricultural implements from the unreserve were as usual issued by the Revenue Department.

(3) *Improvement of water-supply in grazing grounds.*

66. *Madura.*—Three ponds were repaired at a cost of Rs. 173.

Timber Transit Rules.—The rules are reported to have worked satisfactorily.

Sandal Transit Rules.—The Additional Sessions Judge who tried the sensational Bargur sandalwood theft case in which sandalwood worth Rs. 27,000 is involved has sentenced the accused to

varying terms of imprisonment and fine and the accused have preferred an appeal to the High Court which will be disposed of in 1926–27.

A second case in which the same accused and an agent of the contractor are concerned in respect of theft of wood from a different locality is now under trial.

67. *Jungle tribes.*—The hill tribes are employed in the same way as in previous years.

(4) *Mining and quarrying.*

68. There were no alterations in the rules.

(5) *Livestock.*

69. Elephants—*In South Coimbatore.*—There were 22 elephants at the beginning of the year; 8 were captured, 5 sold, 2 died and 2 transferred to Nilambur, thus leaving a balance of 21 at the close of the year with an estimated value of Rs. 79,300.

Other animals.—Of the 95 animals on hand at the beginning of the year, 3 died and the rest were sold for Rs. 6,405.

(6) *Veterinary Assistant.*

70. The livestock was in charge of an Assistant Veterinary Inspector and was inspected by the Inspector of Livestock twice. The general result of the inspection was fairly satisfactory, but the health of the elephants during the year was not good.

(7) *Civil Suits.*

71. In *Madura* the appeal preferred by the department against the decision of the District Munsif, Dindigul, in the suit filed by a fuel coupe contractor and referred to in the last report was dismissed by the Sub-Judge with costs. In *Tinnevelly* the full amount of Rs. 45,000 as per *razinama* deed referred to in the last report was collected during the year.

(8) *Control of unreserved lands by the Forest Department.*

72. The department has no control over unreserved lands in the Circle except over the sandalwood working circles in *Kollegal* and also over an area of 866 acres of unreserves included in the Bargur Sandalwood Working Circle and exploited for bamboos along with the Thamarakarai bamboo working circle.

D. T. BARRY,
Conservator of Forests, Fifth Circle.

COIMBATORE,
12*th August* 1926.

ANNUAL ADMINISTRATION REPORT OF THE FOREST DEPARTMENT

FOR THE

YEAR ENDING 31st MARCH 1926

SIXTH CIRCLE

CHAPTER I.—CONSTITUTION OF STATE FORESTS.

1. Alteration in Areas.

(1) *Reserved forests.*

The total area of reserved forests at the beginning of the year was 1,849 square miles and at the end of the year was 1,848. Just over a square mile was disreserved in South Mangalore, Wynaad and the Nilgiris and a little over half a square mile was finally settled and added in the Nilgiris.

(2) *Reserved lands.*

2. The area under reserved lands remained the same. Half a square mile was transferred to reserved forests and about quarter of a square mile added in the Nilgiris.

2. Forest Settlement.

3. Three hundred and fifty-six acres relating to additions to certain reserved forests in the Nilgiris were finally settled during the year. The draft notification under section 16 in respect of the Mudumalai forests in the Nilgiris was submitted to the Chief Conservator during the year. This was returned for the rectification of certain defects and is pending with the Forest Settlement Officer.

3. Demarcation.

4. Twenty-six miles of new boundaries were demarcated during the year, 15 miles in the Wynaad (Oliote reserve, parts of Peria and Kuppady reserves) one mile of the newly constituted additions in the Nilgiris, and one mile of Kottanikunnu reserve and nine miles of the southern boundary of Attapady Block I in Palghat.

5. The reclearing of boundaries was, as usual, done by the subordinates free of cost in North and South Mangalore and Palghat and in parts of the Wynaad divisions. In Nilambur, reclearing was done as part of the fire-protection operations. In the Nilgiris, an Extra Assistant Conservator continued the verification of boundaries till May 1925.

4. FOREST SURVEYS.

6. In connexion with the Revenue resurvey of the old Kasaragod taluk, reclearing and verification of boundaries of reserves was undertaken departmentally in South Mangalore. In Nilambur, boundaries of the New Amarampalam, Karimpoya and Arimbrakutha reserves were cleared and verified for purposes of resurvey by the Madras Survey Party.

There was no survey by the Government of India Survey Party.

The survey of plantations, coupes, etc., was, as usual, carried out departmentally.

7. The reference maps were maintained in all the divisions.

CHAPTER II.—MANAGEMENT OF STATE FORESTS.

1. REGULATION OF MANAGEMENT.

Preparation and control of working plans.

8. No new working plans were sanctioned during the year.

In the Nilgiris, a scheme for working the Teppakuchi plantation was approved by the Conservator during the year and another scheme for working the bamboo areas of the Coonoor range was approved after the close of the year.

The prescriptions of the existing few working plans and schemes were generally followed. In Nilambur, the final fellings which had fallen into arrears will be brought up to date by the end of 1926–27.

The Working Plans Branch was engaged during the year on the preparation of revised working plans for the forests in the Wynaad including the Nilgiri-Wynaad, the Walayar and Bolampatti Valley forests in the Palghat division, and the Nilambur Valley forests.

2. COMMUNICATIONS AND BUILDINGS.

Roads and Bridges.

9. The expenditure on new works was Rs. 9,948 against Rs. 7,176 in the previous year while that on repairs was Rs. 17,435 against Rs. 14,956 in the previous year.

The principal items under new works were the collection of metal to improve the Sassimalai-Kolvalli road; the construction of 22 miles of inspection paths in the Attapady and Silent Valley

reserved forests; the completion of the Chenat Nair-Muthikulam path within reserved forest limits in the Palghat range; the construction of the Poochipara-Havelock's path; the completion of the Periananthamudi-Muthikulam path, and the alignment and construction of Velladam Shola inspection path.

Three hundred and ninty-five miles of roads, bridle and inspection paths were maintained.

Buildings.

10. There was an expenditure of Rs. 26,182 and Rs. 8,865 on new works and repairs against Rs. 71,661 and Rs. 8,476 respectively in the previous year.

The less expenditure during the year is accounted for by the fact that there were no large scale works in the Wynaad and Nilambur as in the previous year.

The most important new works were—

	RS.
Wynaad—	
Part construction of the combined Range office at Kuppadi.	2,918
Palghat—	
Completion of the timber bungalows at Aruvamparai, Walghat and Periananthanmudi and Havelocks (except out-houses), lightning conductor for the Sappal rest-house and latrines to the bungalows at Aruvamparai and Walghat.	4,982

Miscellaneous other works.

11. The total expenditure on new works was Rs. 10,807 against Rs. 3,485 in the previous year, which represents the cost of providing water for subordinates' quarters. The most important work during the year was the installation of a hydraulic ram at Kargudi for the supply of water to the Forest Settlement there. The work was almost completed, the expenditure during the year being Rs. 3,301.

3. Protection of Forests.

(a) General protection.

12. The total number of offences reported during the year under report is compared below with that of the previous year:—

Cases.	Fire.		Felling.		Grazing.		Other offences.		Total.	
	1924–25.	1925–26.	1924–25.	1925–26.	1924–25.	1925–26.	1924–25.	1925–26.	1924–25.	1925–26.
Cases taken to court ..	32	94	126	103	48	20	24	30	230	247
Cases compounded ..	95	425	801	750	257	141	110	111	1,263	1,427
Cases undetected ..	91	41	3	6	..	..	..	..	94	47
Total ..	218	560	930	859	305	161	134	141	1,587	1,721

13. The total number of offences during the year shows an increase of 8 per cent as compared with the previous year. There was an abnormally large increase (342) under "Injury to forests by fire", and there was a large decrease (144) under "unauthorized grazing". The increase under "fire" as in previous years was due to the unauthorized burning *in unreserves* in South Mangalore for "kumri" cultivation. The decrease under "grazing" occurs in South Mangalore, Wynaad and the Nilgiris. No explanation has been given for the decrease in South Mangalore and the Nilgiris; in the Wynaad it is attributed to the disreservation of Advankunnu reserved forest which was within the limits of Manantoddy. There was a decrease also under "felling", chiefly in Palghat which is ascribed to less number of offences reported from the unreserves.

14. Cases brought to trial during the year were 238, of which 150 ended in conviction and 88 in acquittal. The percentage of conviction in prosecuted cases was 63 against 58·2 in the previous year. Out of the 88 cases treated as acquittals, 66 cases relate to those in which compounding fees were paid in court. Such cases represent 28 per cent of the total number disposed of in court.

15. The amount of compounding fees realized was Rs. 17,261 against Rs. 20,218 during the previous year. The decrease occurs in all the divisions except in South Mangalore and Wynaad where a slight increase is recorded. No reason has been given in North Mangalore and the Nilgiris. The decrease in Nilambur is explained to be due to the smaller number of persons involved, and also to the trivial nature of the offences, while in Palghat it is attributed to the less collections in respect of offences committed in unreserved lands.

The average compounding fee realized was Rs. 12–14–0 per case and Rs. 7–3–0 per person.

16. *Rewards.*—In North Mangalore, a Police Sub-Inspector and an informant were granted Rs. 25 for the detection of a sandalwood case in the previous year.

(*b*) *Protection from fire.*

17. *Special protection.*—The period dealt with is the calendar year 1925.

Early burning operations were continued in the Ghat forests of the North Mangalore division, in all the reserves of the South Mangalore division, and practically all the reserves of the Wynaad division, and in the Sigur range and parts of Mudumalai range in the Nilgiris. In the Wynaad, the early burning was not started until the beginning of January owing to showers. The period which followed was dry and hot; consequently the grass dried so

quickly that areas which would have been burnt could not be fired for fear of escapes. In spite of this, the result was quite good, and though a number of fires did occur, the damage was negligible. In the Mudumalai range of the Nilgiris, the work was nominally begun on 28th December 1925 but practically nothing was dry to burn until the beginning of February 1926 and the work was stopped on the 13th February as the fires were becoming too fierce. Only about two-thirds of the area was fired. There was a considerable decrease in the area burnt in the Mangalores and Wynaad while there was increase in the Nilgiris which has not been explained.

The system of protection by cleared lines continued in other parts of the Circle.

The system of early burning did not meet with any opposition from the ryot population in South Kanara.

The area over which special protection was attempted decreased from 1,139 square miles to 1,134. The decrease was in Palghat where certain fire lines were abandoned in the Bolampatti range as unnecessary. In the Nilgiris, about 50 square miles of the outer slopes of the main Kundah range were successfully protected by lines and patrols.

The area successfully protected was 99·7 per cent against 99·2 in the previous year, and the area burnt was 2,350 acres against 5,667 acres in the previous year. The cost of special protection (under the two systems) was Rs. 12½ per square mile against Rs. 15 in the previous year. The cost of early burning ranged from Rs. 4-6-0 to Rs. 6-10-0 per square mile, while the lowest rate for protection under the old method was Rs. 17-12-0 per square mile.

18. *General protection.*—The area under general protection was 503,210 acres and the area burnt was 1,678 acres.

(c) Protection against cattle.

19. The area closed to grazing remained the same in all the divisions except South Mangalore and Palghat. In South Mangalore, there was an increase of one square mile due to the closure of recently felled coupes. There was a decrease in Palghat due to the opening of Panakadan and Kottanikunnu reserves. The whole of the Nilambur forests continued as usual to be closed to grazing, but in spite of this the young plantations were damaged by cattle from the adjoining villages. The total area closed to grazing was only 328 square miles out of 1,949 square miles of Reserved Forests and Reserved lands, i.e., 17 per cent.

20. Seventy per cent of the total area of reserved forests and reserved lands was open to all animals except sheep and 13 per

cent was open to all animals except browsers. There has been an increase of 3,618 in the number of cattle authorized to graze on payment. There was a large decrease in South Mangalore due to the Kulgunda cattle fair not having been held, while there was an increase in the Nilgiris due to a larger number of slaugter cattle imported from the Mysore Province.

The grazing incidence was—

North Mangalore ...	15·5	acres	per cow unit.
South Mangalore ...	13·5	,,	,,
Wynaad	16·0	,,	,,
Palghat	8·1	,,	,,

The incidence in the Nilgiris has not been worked out as usual for want of proper data.

The number of cattle impounded during the year under review was 2,753 against 1,933 in the previous year. The increase occurs principally in Nilambur and Palghat.

(d) Protection against injuries from natural causes.

21. *South Mangalore.*—In Jalsur East Reserved Forest, *Artocarpus hirsuta* seedlings were found to be dying owing to attack by borer; samples of the insect were sent to the Imperial Forest Entomologist, Dehra Dun, whose report is awaited.

Wynaad.—*Melanthidae caterpillars* are reported to have done damage in the nursery at Doddapallam, where insect attack was reported last year.

Nilambur.—There was little or no damage by floods.

The experiments connected with the identification and study of the life history of the various species of the teak defoliators were closed down during the year. With a view to initiating control methods, work on the lines indicated by the Imperial Forest Entomologist was carried on in the shape of mapping defoliated areas and reporting observations. This work is to be carried on for five years and on the results obtained the Entomologist will advise whether control of these pests can be undertaken at a reasonable cost. This work was done by an Extra Assistant Conservator who also maintained the records of sample plots.

In the Nilgiris, wind and frost did a certain amount of damage on the plateau.

Elephants, bison and sambhur continued to do damage to the young plantations in the Wynaad. Bison in South Mangalore damaged artocarpus seedlings raised artificially in Porkala and Padnur Reserved Forests. In Nilambur, wild animals including elephants caused damage, particularly in the Amarampalam Range. In Palghat, the visits of wild elephants to the Chiunar working circle and the Walayar forests make cultural operations difficult.

CHAPTER III.—SYLVICULTURE.

I. AFFORESTATION AND REGENERATION OF FORESTS.

(*i*) *General progress of areas under regeneration.*

22. *North Mangalore.*—An area of 774 acres in Halesomeshwar was selected for *Hopea* sowings, out of which 352 acres were prepared for sowing during the year. The Hevea plantation in Someshwar reserve is reported to be in good condition, the average girth of the trees being $2\frac{1}{2}$ feet and the height 30 feet.

South Mangalore.—No new Hopea sowings were undertaken during the year.

An area of 37 acres in Nerankimale reserve clear felled by the coupe contractor was sown with seeds of teak, *Terminalia tomentosa*, Benteak, etc. In an area of 20 acres in Narimogar reserve where lantana was uprooted, seedlings of *Artocarpus hirsuta* were planted in the pits caused by the uprootal of lantana.

Wynaad.— Seventy-five acres were regenerated by dibbling of teak seeds.

Nilambur.—Planting and sowing were undertaken over 195 acres of plantation and conversion working circles, the species used being mainly teak; in addition to this, flooded areas and areas of previous years where regeneration was unsuccessful aggregating 193 acres were also reformed. Areas in the plantation working circle in which teak failed were treated with other species.

The Nilgiris.— In about 60 acres in Mudumalai forests artificial regeneration was undertaken, the area being divided into several plots with a view to compare the advantages and cost of clean and patch weeding, sowing, dibbling, stump planting and tuckle.

Another area of 10 acres given for tuckle cultivation was also sown with teak in patches $4\frac{1}{2}' \times 4\frac{1}{2}'$. Clear felled acacia areas, 6 acres in Snowden and 14 acres in Bandyshola were replanted with Eucalyptus globulus and hardwood Eucalyptus species respectively.

Palghat.—In Chenat Nair an area of 16 acres was added during the year, the area being planted with Hopea.

In *Nilambur*, the results were not quite satisfactory, due to paucity of suitable seedlings. Owing to unfavourable weather conditions, dibbling done in the Begur range was almost a failure.

(*ii*) *Establishment of reproduction under working plans or schemes* (*Form No.* 75-*A*).

23. (*a*) *Mainly natural.*—Nil.

24. (*b*) *Mainly artificial—Nilambur plantation working circle.*—Eighty-five acres of original teak plantations clear felled in Moolathmanna and Edacode were regenerated—81 acres being planted

or sown with teak and the balance of 4 acres being planted with *Terminalia tomentosa* (*Karimarudu*). The planting done with *Karimarudu* was successful. Casualties in the teak area are being replaced in 1926–27. Of the area treated with teak, 6 acres were found to be unsuitable for the species.

Conversion Working Circles.—About 50 acres in Walluvasseri (Nilambur range) clear felled and burnt in 1924–25 were regenerated as shown below :—

Twenty-one acres were planted with teak, 21 acres were sown with Xylia at stakes 3 feet apart, 5 acres sown with Rosewood, 2 acres sown with Mahogany and 1 acre sown with *Hopea*. Teak showed success, casualties being 12 to 15 per cent. *Xylia* germinated in addition to which natural seedlings were also noticed. Rosewood and Mahogany also came up well, but *Hopea* was not quite successful. Another area of 59 acres (Pothaculam) in the Amarampalam Range was planted mainly with teak but with a few rows of Karimarudu and Rosewood in parts not suited for teak. Work was fairly successful, casualties being about 30 per cent.

The reformation of unsuccessful areas over 155 acres in Nilambur and 38 acres in Amarampalam was undertaken but the result was disappointing. Lantana was eradicated in about 175 acres as a preliminary to regeneration in the areas to be planted in 1926.

(*c*) *Afforestation.*—Nil.

(*iii*) *Plantations and other forms of regeneration not under working plans or schemes.*

25. *North Mangalore.*—An area of 352 acres in Halesomeshwar coupes VI to VIII was prepared for *Hopea* sowings in 1926–27.

South Mangalore.—Thirty-seven acres of fuel coupe XI, Nerankimale reserve were sown, after clearing and burning, with deciduous species at an espacement of 9′ × 9′.

Wynaad.—Clear felling of natural forests and restocking continued. In the *Begur range*, work was done over 40 acres as under :—

32 acres—dibbling with teak 6′ × 6′.
5 acres do. $4\frac{1}{2}' \times 4\frac{1}{2}'$.
3 acres do. *Terminalia tomentosa* 6′ × 6′.

The work was a failure as casualties in March 1926 in the teak area amounted to 90 per cent while the area under Terminalia tomentosa was a complete failure. The failure was due to unfavourable weather conditions.

Chedleth range.—Teak was dibbled over 30 acres at 6′ × 6′ and over 5 acres at $4\frac{1}{2}' \times 4\frac{1}{2}'$. Results were better here, casualties in March 1926 being 10 per cent in the 6′ × 6′ area and 50 per cent in the $4\frac{1}{2}' \times 4\frac{1}{2}'$ area.

Arrangements were also made for planting in 1926–27 over 100 acres in Begur range and 85 acres in the Chedleth range.

The Nilgiris.—Eucalyptus plantation. Acacia areas felled over were restocked with Eucalyptus over 6 acres in Snowdon in the Ootacamund range and 14 acres in Bandyshola in the Coonoor range.

Mudumalai forests.—Artificial regeneration of teak over 60 acres was undertaken. The area was divided into a number of plots in order to compare the advantages and cost of clean and patch weeding, sowing, dibbling, stump planting and departmental tuckle. Eucalyptus robusta was tried over $1\frac{1}{2}$ acres and Gmelina arborea over 1 acre. The District Forest Officer seems to consider by the results that dibbling is the most satisfactory way of raising a crop.

Departmental tuckle is stated to be more promising as a method of regenerating clear-felled areas, but the District Forest Officer doubts the advisability of clear-felling in the forests of Mudumalai Range. Sandal was also sown over $14\frac{1}{2}$ acres.

Tuckle cultivation.—An area of 10 acres in Mandakarai given for ragi cultivation was sown with teak at $4\frac{1}{2}' \times 4\frac{1}{2}'$ in patches $6'' \times 3'' \times 3''$ and the area was clean weeded.

Kundahs.—No new area was taken up for planting during the year. The preparation of a scheme for planting in this area is under consideration.

Palghat.—In Chenat Nair, regeneration operations were continued and an area of 16 acres was added, the area being planted with Hopea.

(*iv*) *Tending.*

26. *North Mangalore.*—One thousand eight hundred and sixty-one acres sown with Hopea in previous years were tended. Similar work was done in South Mangalore division over 3,871 acres. In the Wynaad, teak and *Hopea* plantations of previous years over 500 acres were tended. In Nilambur, weeding and replacing of casualties were done over 210 acres of plantations.

Nilambur.—In Amarampalam Range, weeding was done continuously by a gang of coolies from July 1925 to January 1926. The District Forest Officer does not consider the system to be entirely suitable unless the work is given on contract and the whole area dealt with in a short time. In Nilambur, weeding was done as usual three times, the first weeding consisting of complete scraping of the lines with mammutties, the second scraping 18″ all round the seedlings and the third, grass kniving and mulching. The District Forest Officer considers that this sort of weeding is not as advantageous as the uprootal of weeds.

In *the Nilgiris*, 1923 and 1924 plantations were weeded and the blanks filled in.

In the *Palghat* division, weeding, mulching, replacing casualties, etc., were done in the regeneration area in Chenat Nair. In the felled coupes of Walayar, bamboo shoots interfering with the coppice growth of valuable species were cut over 300 acres.

(*v*) *General.*

27. Nil.

TENDING GROWING STOCK.

28. In *North Mangalore*, climbers and creepers interfering with the natural growth of valuable species were cut.

In *South Mangalore*, improvement works in coupes I and II of Nalkur were continued with a view to encourage the natural growth of valuable evergreen species.

The works carried out were as follows :—

(1) In patches where the growth of evergreen seedlings was likely to form a complete crop, all shoots, weeds, etc., interfering with the growth were cut to liberate the heads of seedlings.

(2) Lines already cut 4 feet wide and 16 feet apart were re-cleared of all useless growth in patches where there was a sufficient number of established seedlings.

The total area of two coupes is 2,241 acres and the area of patches dealt with is estimated roughly to be half of the above.

Lantana was cleared in three fuel coupes covering an area of 125 acres.

In the Wynaad division, 260 acres of plantations were thinned. Lantana continued to be kept out by uprootal in all teak plantations and in other areas it was burnt.

In Nilambur, thinning was temporarily suspended ; orders have been issued since to resume the operation.

Climber cutting and removal of Loranthus was carried out in several plantations averaging over 500 acres. In the Beypore coconut tope, improvement works such as manuring with fish guano, ash, etc., ploughing the whole plantation, erection of bunds to prevent surface washing, trimming exposed roots, etc., were undertaken in consultation with the Agricultural department.

Panengode natural forest.—To encourage the natural regeneration of Mahogany in natural forests, bamboo clumps, Irul and other trees interfering with the growth of seedlings were removed. The area gone over was 6 acres and it is reported that on an average 1,500 seedlings per acre were obtained.

The Nilgiris.—Thinnings were carried out in some of the Eucalyptus plantations.

Improvement fellings.

29. In North Mangalore, improvement fellings were carried out over 208 acres of Someshwar Coupe 1 to give more light and air to the existing stock, chiefly *Hopea.*

In the Wynaad division, mature, over-mature, dead and unsound teak trees were felled in Mavinhalla reserve over an area of 480 acres.

CHAPTER IV.—EXPLOITATION.

30. During the year 11,120 Broad-Gauge and 5,527 Metre Gauge sleepers of teak, *Xylia*, *Hopea* and *Mesua* were supplied to the railways from this Circle.

In connexion with the supply of sleepers, portable saw mills similar to the one at Beypore have been sanctioned for the Wynaad and South Mangalore divisions.

Business in England was continued through Messrs. Howard Brothers and Co., the realization during the year amounting to Rs. 51,251.

SYSTEM OF MANAGEMENT.

(i) Major Forest Produce.

31. The following sylvicultural systems were in force.

32. *Clear felling.*—Two hundred and thirty-four acres in the Wynaad, 50 acres in the Nilgiris, 138 acres of natural forests and 106 acres of mature teak plantations in Nilambur were clear felled.

33. *Selection fellings.*—Selection fellings in connexion with the regeneration of *Hopea* were undertaken over 746 acres in North Mangalore and 482 acres in South Mangalore. In the Nilgiris, selection fellings of over-mature Rosewood were carried out over 780 acres in Mudumalai forests. In the Wynaad, mature *Hopea*, Irul and *Mesua* over an area of about 450 acres in Kannoth range were filled in connexion with sleeper supply.

34. *Improvement fellings.*—In the Wynaad division, improvement fellings over 480 acres of Mavinhalla reserve were done, the operations being confined to the removal of mature, over-mature, dead and unsound teak trees.

35. *Simple coppice.*—This was in vogue in the case of all fuel coupes in North and South Mangalore, the Nilgiris, and Palghat, the area gone over being 1,726 acres.

36. *Unregulated fellings.*—This was as usual confined to the extraction of sandalwood in North and South Mangalore and in the Nilgiris, the outturn being 56 tons.

(ii) *Minor Forest Produce.*

37. *Bamboos.*—The right to collect bamboos was leased out to contractors in all divisions except Nilambur and South Mangalore where there was no lease. In Nilambur, bamboos were extracted departmentally for floating timber.

38. *Miscellaneous produce.*—This was leased out to contractors in all the divisions except the Mudumalai range of the Nilgiris where it was collected departmentally.

39. *Fodder grass.*—The lease was confined to the Military department and only in the Palghat division where the Military grass farms harvested about 80 tons from one of the closed areas as in the previous year.

40. *Grazing.*—This was as usual controlled by permits, the revenue realized from areas under departmental management (i.e., other than those under panchayats) being Rs. 31,978.

(*b*) AGENCY OF EXPLOITATION.

(i) *Departmental Agency.*

41. Timber and sandalwood were generally extracted by departmental agency all over the circle.

Fuel.—The sale of standing growth in the plantation fuel coupes of the Nilgiris having proved unsatisfactory, departmental fellings were resumed, the fuel being stacked and sold *in situ.*

(ii) *By purchasers.*

42. *Major produce.*—Fuel coupes in North and South Mangalore and Palghat divisions were worked through contractors.

43. *Minor Forest Produce.*—Dead bamboos in North Mangalore and bamboo coupes in Palghat, Wynaad and the Nilgiris were worked by contractors. Permits were also issued departmentally to meet local requirements in all divisions except Nilambur and Palghat. Other minor forest produce continued to be leased out except in the Mudumalai range of the Nilgiris.

44. (iii) *and* (iv) *By right-holders and free grantees.*

—	Timber, in thousands of cubic feet.	Value.	Fuel, in thousands of cubic feet.	Value.	Bamboos.		Grazing value.	Other Minor Forest Produce, value.	Total value.
					Number.	Value.			
		RS.		RS.		RS.	RS.	RS.	RS.
Free grantees ..	1	311	..	..	1,975	21	1,340	1,095*	2,767
Right-holders ..	16	6,045	..	..	..	..	..	..	6,045
Total ..	17	6,356	..	..	1,975	21	1,340	1,095	8,812

* Includes Rs. 1,070 being the value of metal, gravel, etc., removed by the Public Works and Local Fund departments.

45. (c) Outturn and Sources of Forest Produce.

Agency of exploitation.	Timber, in thousands of cubic feet.		Fuel, in thousands of cubic feet.		Bamboos : value.		Minor forest produce and grazing : value.	
	1924–25.	1925–26.	1924–25.	1925–26.	1924–25.	1925–26.	1924–25.	1925–26.
					RS.	RS.	RS.	RS.
1. By Government agency.	675	670	343	980	12,929	9,439	2,046	4,274
2. By purchasers ..	322	223	3,040	2,820	13,942	13,826	69,482	66,322
3. By free grantees.	11	1	1	..	22	23	2,456	2,435
4. By right-holders.	19	16	..	..	..	..	..	..
Total ..	1,027	910	3,384	3,800	26,893	23,288	73,984	73,031

Timber.

46. The outturn under Government agency in 1925–26 was practically the same as in 1924–25, but Nilambur showed a decrease of about 80,000 c. ft. due to a small reduction in the areas felled and to the suspension of thinnings. Against this, the Wynaad and the Nilgiri divisions show an increase of 58,000 c. ft. and 17,000 c. ft. respectively due to larger areas clearfelled and to the selection felling of rosewood.

Purchasers.—The decrease of 99,000 c. ft. is chiefly in respect of less removals from lands assigned on darkhast in North and South Mangalore and the Nilgiri divisions.

Free grantees.—The decrease is mainly in the Palghat division where there was a large number of free grants in 1924–25 on account of floods.

Fuel.

47. *Government agency.*—The increase is principally in the Nilgiris where departmental operations were resumed, contract system not proving satisfactory.

Purchasers.—So far as removals under the control of the Forest Department are concerned, there is an increase of 75,000 c. ft. and in regard to unreserved land there is a fall of 29,500 c. ft.—the increase is principally due to larger fuel areas worked in the Palghat division while the decrease is in respect of removals from lands assigned on darkhast principally in North Mangalore.

Bamboos.

48. *Government agency.*—The decrease occurred in the Nilambur division and was due to the smaller number of bamboos extracted in 1925–26 as compared with 1924–25.

Purchasers.—There is no variation on the whole. However, in the Palghat division, there was an increase of about Rs. 2,700 due to the lease of all the bamboo areas that flowered in the Bolampatti

range. Against this, there was a decrease in the North Mangalore division due to the bamboo areas that flowered having been sold in 1924-25.

Grazing.

49. The number of cattle admitted to graze on payment was 125,294 against 121,676 in the previous year.

There was a large increase in the number of slaughter cattle in the Nilgiris, while there was a decrease in South Mangalore due to the Kulgunda cattle fair not being held.

Minor forest produce.

50. *By the Government agency.*—The increase was chiefly in the Nilgiris and Wynaad on account of a large quantity of ivory collected during the year. In Palghat, elephant tusks found in a reserved forest were also sold, realizing Rs. 592

By purchasers.—There was a decrease in Palghat due to poor prices realized at the auction sales on account of poor crops.

CHAPTER V.—FINANCIAL RESULTS.

51. The Forest Research office was transferred to the control of the Conservator of Forests, Working Plans circle. Commercial accounts were introduced in Nilambur division and it was first thought that all the operations of the division—Exploitation as well as Regeneration—would come under this, but subsequently it was decided that regeneration is at present beyond the scope of commercial accounts. Expenditure on regeneration is being financed by exploitation which is reimbursed at the end of each quarter. The expenditure on account of regeneration for the last quarter, i.e., period ending 31st March 1926, has not been adjusted yet. Consequently the figures relating to Nilambur have been excluded completely for purposes of comparison, as also the Forest Research division.

	1924–25.	1925–26.
	RS.	RS.
Revenue	6,63,766	6,68,079 *
Refunds	4,607	3,692
	6,59,159	6,64,387

* Excludes Rs. 5,600 credited in the V Circle.

Expenditure.

B. Conservancy and works (including capital outlay).	3,31,105	3,88,185
C. Establishment	4,01,351	4,20,349
	7,32,456	8,08,534

52. Compared with 1924-25 the revenue increased by Rs. 4,313 and the expenditure by Rs. 76,078 (Rs. 57,080 under 'Works' and Rs. 18,998 under 'Establishment').

53. There was an increase in revenue under 'VIII (*a*) Timber and other produce removed from forests by Government agency' (Rs. 17,140), 'VIII (*b*) (1) Timber and other produce removed by consumers' (Forest Department) (Rs. 6,585) and under VIII (*c*) and (*e*) 'Confiscated produce and other miscellaneous items' (Rs. 4,813), while there was a decrease under VIII (*b*) (2) Timber, etc., removed by consumers' (Revenue Department) (Rs. 24,449).

Under VIII (*a*), there was an increase under 'Timber', while there was a decrease under 'Sandalwood', and 'Firewood and charcoal'. The increase under 'Timber' was chiefly in the Wynaad, due to the sale of a larger quantity than in the previous year and to the realization of about Rs. 32,000 on account of sales in England. The decrease under 'Sandalwood' was in the Nilgiris due to the realization during 1924–25 of the revenue due in 1923–24. The decrease under 'Firewood and charcoal' was due in South Mangalore to the sale to a contractor of standing growth in a coupe which was worked departmentally in the previous year, and in the Nilgiris to late sales.

Under VIII (*b*) (1), there was an increase under 'Firewood and charcoal', while there was a decrease under 'Timber'. The increase under 'Firewood' was due to larger areas of coupes sold in North Mangalore and Palghat. The decrease under 'Timber' occurred in Palghat where in 1924–25 the standards left in the Walayar coupes had been sold.

There was an increase under 'Other sources' due to the withdrawal of the concession of rent-free quarters and to a larger realization from the sale of elephants.

54. The increase in expenditure was under works of an ordinary nature which amounted to Rs. 60,000, and occurred mainly under departmental timber, fuel and sandalwood operations. The supply of sleepers to the railways was undertaken, the contract system of working plantation fuel coupes in the Nilgiris was replaced by departmental working, and sandalwood brought down by floods in the same division was collected for the market.

Under 'Capital outlay', there was a decrease under buildings due to less expenditure in South Mangalore and Wynaad. There had been a large building programme in Wynaad during 1924–25 involving a large expenditure during that year.

The apparent increase under V (*a*) and V (*c*) ('Purchase of cattle and cost of stores') relating to capital outlay is due to debiting the expenditure under these heads to capital outlay during the year instead of to ordinary expenditure as was done in the previous year.

The increase under ' C. Establishment ' was principally due to the entertainment, for the whole year, of the establishment of Beltangadi and Sultan's Battery ranges, formed in the latter part of 1924–25, and to the payment of Wynaad special allowance to the Instructors and the students of Vernacular Training School. There was also increased expenditure under ' Travelling allowance ' and 'Pay of officers (Non-Voted) ' actually employed in the circle in the course of the year.

55. The outstandings of revenue at the close of the year amounted to Rs. 77,735 ; out of this, the amount falling due within the year was Rs. 44,508.

56. Of the revenue realized in the year, 79 per cent was from major produce, 7 per cent from minor forest produce, 5 per cent from grazing and 9 per cent from other sources.

57. Of the expenditure, 58 per cent relates to exploitation, 20 per cent to improvement and upkeep of forests and 22 per cent to miscellaneous items.

CHAPTER VI.—RESEARCH AND EXPERIMENTS.

58. Sylvicultural research work is being conducted by the Forest Research Officer working under the control of the Working Plans Conservator. A separate report is sent by him to the Chief Conservator and to the Forest Research Institute, Dehra Dun. The observation areas of the Forest Research Officer are located in all the divisions of the circle.

The following experiments were carried out by the District Forest Officers:—

59. *The Nilgiris.*—Two-hundred and seven Lucaena glauca seedlings were planted along the margin of the Ghat Road in Burliyar reserve, out of which 137 plants are alive and are doing well. Mahogany over about half an acre in the same reserve is growing well.

60. *Palghat.*—One acre of burnt area in coupe A, compartment IV of Pulampara Block I was planted with over one-year old teak seedlings on 1st April 1925. There having been no rain immediately after planting, all the plants dried up. There were only two living plants on 26th January 1926. The experiment was started too late in the season.

The cutting of climbers over five acres in each of the three felled coupes in the South Fuel Working Circle of Bolampatti Range was done at a cost of Rs. 25 between 18th October 1925 and 1st November 1925. Inspection on 24th December 1925 showed that the crowns of trees liberated looked healthy with a more open canopy. In open spaces, lantana bushes looked healthier. Some of

the mutilated stumps of climbers, mostly Acacia indica and Butea superba, were found to have sent forth new shoots. One new shoot of *Spatholobus roxburghii* which sprang from roots measured 12 feet—the growth of two months.

An experimental clearing of lantana in two plots of half a square chain each in a felled and an unfelled area respectively in the Chinnar Working Circle was carried out by the students of the Madras Forest College in September 1925. The areas selected contained lantana of average density. The lantana was grubbed up by the roots and the stumps and roots were stacked on platforms outside the plots. Based on the work done by the students, the cost of clearing and burning lantana in the unfelled area was estimated to cost Rs. 12 per acre and in the felled area Rs. 23 per acre.

61. The instructor in charge comments as follows :—

"At present there is no information as regards the best method of eradication or cost and the number of times an area must be gone over to entirely exterminate the pest and so the experiment I have started, should, if continued for another two years, provide useful and valuable information. As far as I can judge, it will be easier and cheaper to eradicate lantana in unfelled areas for the following reasons :—

(1) The growth on the whole is less dense.

(2) The shade of the trees will prevent, to a less extent, further regeneration from root and coppice shoots from any root or stem left by oversight on or in the ground.

(3) There is a less number of seeds and so seedling regeneration will be less.

(4) There are no heaps of rubbish or branchwood lying about as in a felled coupe, and so it will be easier and cheaper to trace out the lantana and to uproot it."

"The extraction of lantana can best be carried out towards the end of the rainy season, so that the ground may be soft and extraction easy and also the cut stuff will not have to be long on the ground before being burnt. However, the best time of extraction will depend when the lantana in this area fruits most prolifically, and I am inclined to think it does so during the end of the rains and so it will be better to start the uprooting operations soon after the break of the rains in the locality."

"A point which will require careful supervision is that the lantana should never be cut before it is uprooted as, if this is not watched, the coolies will cut off young simple shoots and not grub up the roots at all so as to save themselves the bother of having to do so."

62. Seeds of *Albizzia lebbek* and *Odoratissima* were dibbled on 20th August 1925 over 300 patches in a small bamboo flowered area in coupe 6, compartment II of Chinnar Working Circle. In the open space the ground was staked at six feet apart and five to ten seeds were put in at each stake. All growth giving shade was removed, and a line was cut three feet wide all round the area. Germination began by the last week of September 1925 and seeds germinated in 141 patches. The area was weeded in November 1925. As the soil became stiff it was raked up around the seedlings and the mulched earth was covered with leaves but no more seedlings appeared. The dates of inspection and the number of pits found successful were—

23rd November 1925	128
22nd December 1925	105
10th May 1926	39

63. *Nilambur.*—(i) Five plots of $1\frac{1}{2}$ acres each in Moolathmanna compartment 17 were treated experimentally as follows:—

(1) Sown and plough weeded.
(2) Sown and hand weeded.
(3) Planted and plough weeded.
(4) Planted and hand weeded.
(5) Pitted, sown and hand weeded.

In the area in which ploughing was carried out, the plants have grown appreciably better and look more healthy. Most of the plants in the ploughed areas have reached a height of five feet in the first year.

It was also observed that there was less weed growth in the ploughed areas than in the others.

(ii) In compartments 75 and 76 of Edacode 1925, two plots (one in each) each two acres in extent were marked out.

These were planted along with the others $6' \times 6'$. The weedings in these plots were done with ploughs. It was observed that in both the areas the growth of plants was distinctly superior to that in adjoining areas weeded in the usual way by hand.

(iii) About $1\frac{1}{2}$ acres in Moolathmanna 1925 compartment 19 were planted with tubed plants of *Karimarudu* (*Terminalia tomentosa*) and a similar area in compartment 23 was planted with ordinary transplants from the nursery.

Marked difference in height growth was noticed in the tubed plants, when compared with the ordinary transplants from the nursery bed.

The percentage of casualties was also considerably less in the case of tubed plants.

But the bamboo tubes alone (not taking into account the value of bamboos) cost about Rs. 12 per acre and this together with the time and labour involved in the operation, makes it impracticable to use tubed plants over a large area.

(iv) In order to find out the species suited to areas in which Teak has failed, and also to judge the cause of failure of Teak, the following experiment was carried out:—

A hard laterite area in compartment 35 of Elanjeri 1920, 0·2 acre in extent was planted with 49 Teak with ash manure, 49 Teak with salt manure, 50 plants each of *Karimarudu* (*Terminalia tomentosa*), Venteak (*Lagerstroemia microcarpa*), Mahogany and Rosewood without manure. The surviving plants at the end of the year were :—

Teak planted with ash manure	3
Do. salt manure	2
Karimarudu	6
Venteak	Nil.
Mahogany	12
Rosewood	15

As regards Teak, it was observed that the manuring with ash and saltpetre, did not help in the growth of the plants, which are in no way better than the other surviving seedlings in the area.

Among the other species, Mahogany and Rosewood were found suitable to such localities.

(v) In two acres of Arivallikava 1917, compartment 5, and in one acre each in compartments 147 and 148 of Walluvassery (in all 4 acres) Divi Divi (*Caesalpinia coriaria*) seeds were sown at stake 6 feet apart in July 1925, in order to see whether this species will be useful as an undergrowth in the plantations. Germination was satisfactory, but later on everything disappeared.

(vi) In compartment 14 of Arivallikava 1921–22, 200 pits, 18″×1′×1′ were dug and filled in with leguminous plants on 19th May 1925. In these teak seedlings were planted on 26th June 1925. But the survivals were very few.

The object of this experiment was to see whether green leaf manure has any effect in promoting the growth of teak; but as the area was later on found inclined to be swampy and consequently not suited to Teak, no definite conclusion can be deduced from this experiment.

(vii) In Walluvassery plot I of 1924 and compartment 65 of 1923, a large number of plants one year old were put in, in filling up casualties. Most of them though weakly at the beginning have come up well. This compartment though it has been under regeneration since 1923 and has been subjected to various methods (Experimental) of regeneration is still very open in places. It will need further treatment before a full stocking is obtained.

(viii) Thirty-eight teak stumps from 1919 nursery of Nedungayam were put in compartment 15 on 12th August 1925. Eight days after planting shoots developed and 15 stumps were growing

vigorously. In the the last week of September, it was found that the leaves of the stumps were fading. Of the 38 stumps only 14 are now surviving.

Stumps from the same nursery were planted in plantation 1924-A, Amarampalam range, 200 on 29th April 1925, 200 on 14th May 1925, and 410 on 18th July 1925. One hundred and ninety-three of them are surviving, while of those put in May 1925, only 167 are surviving. Those put in July have come up well.

Teak stumpings were also planted in Walluvassery plot I 1924 (166 in ash manured pits, and 390 without manure) and in Kanakutha 1923 where one acre was planted with stumps only.

Those in Walluvassery plot I were one year old, while those in Kanakutha were two years old. The percentage of failure was greater in the case of the ash manured ones. The other stumps in plot I have come up well.

In Kanakutha 1923, the casualties were 50 per cent.

(ix) Natural seedlings of *Hopea* were put out in Wallvassery plot III and compartment 147 of Walluvassery. Those in plot III were not manured while those in compartment 147 were manured with ash. But almost all the seedlings in both the areas failed.

(x) In plot I of Walluvassery 1924, a small experiment was carried out with a view to counteract the heavy growth of weeds. Bamboos flattened to resemble rough mats $3' \times 1\frac{1}{2}'$ were placed on either side of 25 teak plants and were nailed to the ground by bamboo reepers. It was observed that the weeds were kept down successfully, but the expenditure involved is such as to prohibit any large scale work of this nature.

(xi) In plot I of Walluvassery about 3 acres were fenced and 500 Jack (*Arocarpus integrifolia*) and 500 *Ayini* (*Artocarpus hirsuta*) seedlings raised in bamboo tubes were planted on 3rd, 4th and 5th September 1925. The plants were also watered as there was no rain for some time after planting. All the seedlings came up well. In January 1926 there were only two casualties. But at the end of March 1926, there were only 263 Jack and 386 *Ayini* plants surviving or about 65 per cent. Had the seedlings been aerated in February—March, the results might have been more satisfactory.

(xii) An experiment in the shape of underplanting was carried out in plantation 1906 Amarampalam range. Six plots each half an acre in extent were fenced and planted in July and August 1925 with *Ayini*, Jack, *Karimarudu*, Mahogany, Rosewood, and *Hopea*. Jack was raised by direct sowings, *Hopea* and Mahogany plants were collected from natural forests, and the plants of other species were obtained from the nursery. Mahogany, *Ayini*

and *Karimarudu* plants were heavily browsed by spotted deer, against which the temporary bamboo fence was not a sufficient protection. Jack, though browsed, is again sprouting up.

The following statement gives the number of plants originally put in and the survivals as counted on 10th June 1926: —

Species.	Number planted.	Survivals.	Percentage of survivals.
Mahogany	378	42	11·1
Ayini	357	23	6·5
Karimarudu	357	36	10·1
Hopea	300	218	72·6
Rosewood	404	215	53·2
Jack	308	215	69·8

(xiii) Three hundred plants each of teak and Hopea were treated with artificial manure, (1) with ash, (2) with green manure, and (3) with nitrate of potash, in different localities in Amarampalam range. There was little or no difference between manured and unmanured plants, while those planted in pits treated with nitrate of potash were found withering after a few days of planting, probably due to the manure being in too concentrated a form.

CHAPTER VII.—ADMINISTRATION.

64. The following officers held charge of the Circle during the year under report :—

Name of officer.	Period of charge.
Mr R. D. Richmond, Conservator of Forests.	1st April 1925 to 6th May 1925.
,, T. A. Whitehead, acting Conservator of Forests.	7th May 1925 to 8th November 1925.
,, H. A. Latham, Conservator of Forests.	9th November 1925 to 31st March 1926.

The exploitation of the Nilambur Valley Forests was placed under the commercial accounting system with effect from 1st April 1925.

The Working Plans Circle was constituted during the year. The activities of this branch were confined mostly to the Wynaad, the Nilgiris, Palghat and Nilambur divisions and consisted in the revision of working plans relating to these divisions.

Tours.

65. The Inspector General of Forests and the Chief Conservator of Forests visited the Nilambur Teak plantation and the Dhoni and Chenat Nayar forests in the Palghat division. Dr. Beeson, the Imperial Forest Entomologist, spent a week in Nilambur in August 1925 in connexion with the investigation of Teak defoliators.

The Conservator of Forests toured in all the divisions of the Circle spending 152 days in camp. Inspection notes were written on the Bolampatti and Walayar forests in the Palghat division and on the Wynaad and South Kanara forests. The short touring is due to change of officers in the first half of the year.

All the District Forest Officers except North and South Mangalore spent more time in camp than the prescribed minimum. The touring fell short in the North Mangalore division by 45 days due to the District Forest Officer's illness, and in the South Mangalore division by 4 days—a shortage which calls for no remarks.

Inspection of District Forest and Range Offices.

66. The Conservator inspected all the District Forest offices in the Circle and the District Forest Officers all the Range offices in their divisions.

Besides Forest depots, the timber sale depots at Mangalore, Kasaragod, Beypore, Mysore and Nanjangud, and the sandalwood depot at Masinigudi were inspected by the District Forest Officers.

District Forest Officers' Accounts' Inspection.

67. The audit staff attached to the Accountant-General's office inspected the accounts for 1924–25 of all the divisions except Nilambur and the general result was satisfactory. The accounts relating to 1924–25 of Nilambur were audited by Messrs. Fraser & Ross, the Chartered Accountants, who also audited the accounts of the Wynaad division for 1924–25 under the orders of Government.

Vernacular Training School.

68. The second session of the Vernacular Training School was held in the Wynaad division from 1st May to 31st October 1925 with Ranger J. S. Rowland as Senior Instructor, and Supernumerary Ranger P. Madhavan Nayar as Junior Instructor. The school started with 30 students (4 foresters and 26 forest guards), of whom one forester resigned during the first week of the session, one forest guard died during the course, and another forest guard had to leave owing to illness. All the remaining 27 were awarded certificates, 15 in the first class and 12 in the second class. The conduct and discipline were good. The students suffered a good deal from malaria.

Health of Establishment and Sanitation.

69. The health of the establishment was on the whole fairly good except in the Ghat forests of North Mangalore, in Nalkur, Porkala and Dharmastala reserves of South Mangalore, in the Wynaad, in the Amarampalam range of the Nilambur division, in the low-lying areas of the Nilgiris, and in most of the reserves of the Palghat division. The casualties during the year were few. One forest guard died in the Wynaad falling a victim to malaria.

CHAPTER VIII.—GENERAL.

(i) *Formation and Management of Panchayats*

(To include the forest village system.)

70. The panchayat system was in operation in the North and South Mangalore and Palghat divisions. In North and South Mangalore, the panchayats were under the forest village system.

In North Mangalore, there were eight panchayats in charge of 13 reserves against seven in the previous year. The increase of one in the number of panchayats was due to the formation of an independent panchayat, for each of Todar and Hosabettu reserves which were under one panchayat in the previous year and had been managed badly. All these eight panchayats are reported to have worked satisfactorily, protecting the forests from fire and offences.

In the case of the panchayat managing Mavinakodlu and Matkalgudde reserves, the scheme of operations for located fellings and broadcast sowing of Hopea outlined in the previous report could not be undertaken to the full extent by the panchayat as the agreement was executed only on 2nd November 1925. Felling and sowings were carried out only after the close of the year. The felling done by the villagers in two of the coupes is reported to consist of indiscriminate lopping of top and side branches of unclassified trees, and not cutting trees flush to the ground. The president of the panchayat explains that he was unable to inspect the fellings owing to his illness and he has promised to rectify the irregularities. The villagers are also reported to have sown broadcast 9 to 12 bags of Hopea seed in 10 acres. The sowing which was done without clearing the undergrowth is not expected to be successful though some seedlings are coming up here and there. The President of the panchayat has realized the mistake in the method of sowing and has promised to sow again next year if the present sowings are unsuccessful.

In South Mangalore, only one panchayat for the Balleri reserve was in existence and its work is reported to be satisfactory.

In the Palghat division, the panchayats of Ettimadai, Madukharai and Sundakkamuthur constituted for parts of Bolampatti Block I under the control of the Revenue Divisional Officer, Coimbatore, were suspended by the Collector for bad management and the Collector has taken charge of these areas.

The panchayats in respect of the Erode Hill reserves are under the control of the panchayat officer directly working under the Board of Revenue.

(ii) *Measures for Improving Local Supplies and Facilities.*

71. In North and South Mangalore divisions, the concessions to the ryots referred to in the previous report were continued for another year, from 1st August 1925, and the ryots are reported to have appreciated them.

In South Mangalore, timber in logs and sized scantlings continued to be sold at fixed rates in the sale depots at Kasaragod and Mangalore, and also in the coupes. In the Nilgiris, the demand for small timber, fuel and bamboos was as usual met by the issue of permits, while in Palghat the demand was met from coupes under working. No measures were called for in the Wynaad and Nilambur.

As all the districts in the Circle enjoy a copious rainfall, no steps for improving the water-supply in grazing grounds is considered necessary.

(iii) *Timber and Sandalwood Transit Rules.*

72. The rules are reported to have worked satisfactorily except in the Bolampatti range of the Palghat division. The order issued by the Collector of Coimbatore to the effect that permits in respect of the removals of timber from patta lands should be countersigned by village munsifs appears to have resulted in some change for the better in the protection of the lower slopes of the Bolampatti Valley The submission of the revised Timber Transit Rules for the Palghat Division is pending discussion with the District Forest Officer.

(iv) *Jungle Tribes.*

73. *Wynaad Division.*—The policy of assigning lands in reserved forests to Kurumbers for temporary cultivation with a view to settling them in forests and procuring their labour for departmental works was continued. Proposals to grant them forest produce free for their domestic purposes and to allow free grazing to their cattle have been formulated.

The school for Kurumber children at Muthanga was continued and the working is said to be satisfactory. The strength of the school at the end of the year was 26 which included some girls.

The Nilgiri division.—The Kasubas in the Sigur range were encouraged to settle at Anaikatti, lands being given them free for cultivation.

Palghat.—The eighteen Mulcer settlements in Bolampatti and Mannarghat ranges continued to be the chief source of labour on

the hills. These people cultivated lands free of assessment. In the Bolampatti range, tuckle cultivation is being started with their assistance.

(v) Mining and Quarrying.

74. Nil.

(vi) Livestock.

75. (a) *Elephants.*—There were 80 elephants at the beginning of the year. Eighteen were captured, and two were transferred from South Coimbatore, making a total of 100. Of these 12 died; and 17 were sold leaving 71 at the end of the year valued at Rs. 2,18,870.

Of the 12 that died, 8 were working elephants. The mortality among working elephants was unusually heavy due to the prevalence of Anthrax in the Nilgiris and Wynaad. "Jupiter" in the Nilgiris, the most powerful tusker in the department, died of Tetanus. One tusker in the Wynaad was mortally gored by another tusker.

A sum of Rs. 15,100 was realized by the sale of calves and new captures.

(b) *Other animals.*—There were 18 bullocks and 33 buffaloes at the end of the year. One bullock and two buffaloes died and 6 buffaloes were sold, leaving 17 bullocks and 25 buffaloes at the end of the year.

(vii) Veterinary Establishment.

76. The Veterinary Assistant stationed at Gudalur looked after the livestock in the Nilgiris and the Wynaad, while the Assistant at Nilambur looked after the animals in that division. The work of the Assistants was supervised by the Inspector of Livestock who attended to the elephants in Kanara.

(viii) Civil Suits.

77. *South Mangalore.*—The appeal in the High Court referred to in the previous report is still pending.

The appeal preferred by Government in the District Court against the decision of the District Munsif in the matter of timber sold to a merchant, has failed. The question of a second appeal to the High Court is under consideration.

Wynaad.—The appeal filed by Contractor Venkatarama Chetti in the Chief Court, Mysore, referred to in the previous report, has not yet been heard.

Nilambur.—The appeal preferred by the Uralan to the High Court against the decree of the District Court, South Malabar, in the boundary dispute of Kariem and Muriem blocks is still pending. The Uralan not having paid to Government the amount awarded by the District Court, the Government Pleader has prepared a plaint and the sanction of the Board of Revenue has been applied for to file a suit against him.

T. CLEAR,
Acting Conservator of Forests, Sixth Circle.

OOTACAMUND,
26*th August* 1926.

ADMINISTRATION REPORT OF THE MADRAS FOREST COLLEGE, COIMBATORE, FOR THE PERIOD FROM 1st APRIL 1925 TO 31st MARCH 1926.

CHAPTER I.

Constitution.

Staff.

Principal.—The office of Principal was held by Mr. C. R. F. Williams throughout the year.

Instructors.—The posts of Senior and Junior Instructors were held as follows:—

Name of Officer.		Period.
		Senior Instructors.
Mr. J. A. Wilson ...	...	1st April to 17th December 1925.
		(18th to 23rd December 1925 vacant.)
Mr. V. G. Darrington	...	24th December 1925 to 31st March 1926.
Mr. R. H. Mitchell	...	Throughout the year.
		Junior Instructors.
Mr. A R. Brand ...	...	Throughout the year.
Mr. C. M. Kushalappa	...	1st April 1925 to 19th July 1925.
Mr. M. S. Raghavan	...	20th July 1925 to 31st March 1926.

Sub-Assistant Surgeons.—Messrs. T. K. Nagarajan, P. R. Sitaraman, S. Ponnuswami Ayyar and N. P. Subrahmanyam were attached to the College during the camping periods as Medical officers and they delivered occasional lectures in First Aid and Camp Hygiene. First Aid Lectures were delivered in Headquarters to the students of the Senior Division by the Medical Officer in charge of the Lawley Road Dispensary.

All students were instructed in Physical Training and Drill by the College Havildars under the supervision of Mr. R. H. Mitchell.

Board of Visitors.—Mr. H. Tireman, C.I.E., I.F.S., Chief Conservator of Forests, was ex officio President of the Board of Visitors during the year under report.

The following officers were members of Board during the year: —

Name of officer.		Period.
Mr. H. A. Latham	...	6th December 1925 to 31st March 1926.
Mr. R. D. Richmond	...	1st April to 6th May 1925 and 28th to 31st March 1926.
Mr. A Wimbush ...	...	Throughout the year.
Mr. T. A. Whitehead	...	7th May 1925 to 31st March 1926.
Mr. D. T. Barry ...	...	Throughout the year.
Mr. T. Clear ...	...	1st April 1925 to 31st March 1926.
Mr. C. C. Wilson ...	...	1st April 1925 to 1st December 1925.
Mr. A. A. F. Minchin	...	7th May 1925 to 21st March 1926.
Mr. F. R. Madan ...	...	22nd to 31st March 1926.

CHAPTER II.

INSTRUCTION.

Special Lectures.—Mr. M. F. Bridge, Forest Economist, gave a course of lectures to the senior students on some of the more important aspects of Forest Utilization, but owing to his taking home leave, Mr. Pearce, Logging Engineer, was not able to repeat his very interesting course of lectures in Logging Engineering. It has been arranged that both he and Mr. Wernham, who has recently returned from special training in America, will deliver short courses of lectures to the students during the ensuing year. The utility of these lectures from experts both in College and on tour cannot be overestimated. It is our object to turn out a practical Ranger and such instruction is of very great value.

1923–25 *division.*—The Final Examination of the 1923–25 division was held in June 1925. Twenty-five students appeared for the examination of which three were awarded Honours Certificates, 18 Higher Standard Certificates and three Lower Standard Certificates. The remaining one student failed to qualify. Although the number of Honours was not so great as in the previous year, a greater proportion of students obtained the Higher Standard Certificate, nearly all with ease. The Central Provinces and Bombay students particularly were much better than in the previous year. There was no student of outstanding ability.

The following list shows the certificates awarded in order of merit :—

Rank.	Name of student.		Name of Circle, State or Province to which attached.
	Madras Ranger with Honours.		
1.	S. Narayanaswami Ayyar	...	V Circle.
2.	Benjamin Muliyil John	...	Bombay.
3.	T. S. Sankaranarayana Ayyar.		III Circle.

Rank.	Name of student.		Name of Circle, State or Province to which attached.
	Madras Ranger Higher Standard.		
4.	Khuda Bubhek Kureshi	...	Bombay.
5.	Dulat Jayaram Tanpure	...	Do.
6.	Antony John Andrade	...	Do.
7.	A. Subrahmanyam ...	...	I Circle.
8.	Khan Muhammad ...	...	Central Provinces.
9.	Siripala Illayaperuma	...	Ceylon.
10.	Omman Poonacherial Mathews.		Bombay.
11.	Ramjidass Varma ...	...	Central Provinces.
12.	Jannardan Divivedi ...	...	Keonjahar State.
13.	Govind Madhao Ayade	...	Central Provinces.
14.	Dharnidhar Rawat ...	...	Do.
15.	John Victor Perera ...	...	Ceylon.
16.	Muhammad Kassim ...	...	Bombay.
17.	S. S. Harisinghani ...	...	Do.
18.	Muhammad Abdul Sathar	...	Bihar and Orissa.
19.	R. Ramaswami Nayudu	...	Bombay.
20.	S. Sebastian Pillai ...	...	Ceylon.
21.	M. Manickam	...	Do.
	Madras Ranger Lower Standard.		
22.	Arogiaswami Pillai ...	...	II Circle.
23.	Chukravarthi Jaichand	...	Central Provinces.
24.	Krishna Kamal Banarji	...	Bihar and Orissa.

Government and other Prizes were awarded as follows :—

1. Gold Medal for the best second year student—S. Narayanaswami Ayyar.

2. The Campbell Walker Prize for the best student in Forestry—S. Narayanasawmi Ayyar.

3. The Brasier Prize for the best practical out-door Ranger—T. S. Sankaranarayana Ayyar.

4. The Lodge Prize for the best second year student in Forest Engineering—Benjamin Muliyil John.

5. The Madras Conservators' Prize for the best student in Survey and Drawing—Benjamin Muliyil John.

6. The Indian Forester Prize for the best essay by present students—S. Narayanaswami Ayyar.

7. The Indian Forester Prize for the best essay by past students—K. Pushparajalingam.

8. The Chief Conservator's Prize for the best student of the Junior division—P. K. Subbanarayana Ayyar.

9. The Pentland Shield for the best Athlete in the College—Khan Muhammad.

10. The Fischer Challenge Cup for the best Tennis Player in the College—Khan Muhammad.

11. The Muppil Nair Cup for the Marathon Race—Muhammd Kassim.

Messrs. W. G. Dyson, J. K. Pearce, J. D. Connolly, H. P. Ward, R. S. Browne, Major Chipp, Sayid Abdul Qadir Sahib Bahadur and W. C. Hart conducted the Final Examinations in June 1925. The average of the Senior year both in term and examination was higher than in the previous year.

1924-26 *division.*—The 1924–26 division, the present Senior year, with one or two exceptions was, on the whole, doing fairly well. Three students having been sent down as being unlikely to profit by the course, the Senior Division began the year 26 strong all of whom have since completed their course.

The Final Examination in Physical Science was held in June 1925 with satisfactory results.

First Aid Examination.—Twenty-six students were examined in First Aid by a Medical officer of the Government Hospital, Coimbatore, and all of them gained the Saint John's Ambulance Proficiency Certificates.

1925-27 *division*—The division began the course 29 strong owing to students from Ceylon and Orissa not taking up the sanctioned seats. One Central Provinces student was sent down early as not being likely to profit by the course and his place was filled by a Madras Forester who will be taken on by the Central Provinces Government if successful.

The students as a whole are getting on quite well. It is interesting to note that the top man of this division for the first time is a Central Province student.

2. *Periodical Examination.*—The Periodical Examinations held during the year show that the two divisions are making satisfactory progress.

3. *Practical Training in Headquarters.*—Besides the usual Saturday mornings a number of other days were also devoted to practical work on the estate. The Demonstration Forest afforded an opportunity for applying sylvicultural and utilization principles; a certain amount of practical engineering was also carried out.

4. *Prize Giving.*—The usual Annual Prize Giving was held at the College on 30th June 1925, when Mr. H. Tireman, C.I.E., Chief Conservator of Forests, presided and Mrs. Tireman very kindly presented the prizes and certificates.

The usual Garden Party in the College grounds followed.

CHAPTER III.

Administration, Touring, Health and Conduct.

Administration.

1. *Board of Visitors' Meeting.*—The Board of Visitors held their annual meeting at the College on the 29th June 1925.

Among the various points of College administration discussed were :—

I. Revised System of Marking.

The Principal proposed certain alterations under Utilization, Engineering and Working Plans and these were approved by the Board.

II. Presence of Conservators at Oral Examinations.

The Principal brought to the notice of the Board the fact that several Examiners expressed reluctance to conduct the oral examination in the presence of Conservators. It was resolved that, in future, the examiner alone should be present at the oral examinations but that in order to decide whether Honours should be awarded to the men who would obtain them on marks, these men should be orally examined by a selected Conservator in each of the following subjects :—

(1) Working plans,
(2) Utilization,
(3) Sylviculture, and
(4) Range Administration.

III. Change of senior division camp from Bolampatti to Walayar.

There was a combined camp for the Senior and Junior divisions at Sadivayal (Bolampatti range) from 14th September to 9th October. The Principal suggested that the Senior division be permitted to camp at Walayar in lieu of Sadivayal as the latter camp does not merit two visits by a division. Whereas Walayar, while even more accessible, would prove a very interesting camp. This was approved by the Board.

IV. Interchange of clerks in various offices.

The Principal pointed out that clerks of the Forest College have no promotion to look forward to outside the College office and suggested that when vacancies of Accountants and Managers in the Chief Conservator's and Conservators' offices have to be filled up the claims of clerks of the Forest College be considered. This was approved by the Board.

V. Practical Demonstration in Sylviculture—Change of the College curriculum and year.

Mr. R. D. Richmond proposed that the Forest College year should be changed in order that the students might actually carry out the work of lining, pitting, planting etc. Owing to the difficulty of changing the Forest College year and to the fact that a

very important part of planting operations, viz., lining, pitting, etc., is done during the fever season, when it is most inadvisable to take the students into camp the proposal was not carried. The Board resolved that the difficulty could be overcome by lining a considerable area near Coonoor when the Junior Division is in camp there and by taking the Senior Division on their return from the vacation to Walayar, where an area should be set apart for the College to line, pit and plant.

2. *Cost of Education.*—As shown by figures given in Statement No. I appended to this report the actual net cost of the College to Government this year has been Rs. 21,061 against Rs. 11,839 of the previous year.

There were 12 Madras students under training at the College which makes the cost to Government per student Rs. 1,755 as against Rs. 1,480, the previous year.

This it will be observed is rather higher than the Rs. 1,500 charged per student to other Provinces.

3. *Touring.*—The camping during the year was carried out in accordance with the sanctioned programme, vide details below :—

1923–25 *Division.*

April and May 1925 – *Arambyshola* — This was the last camp of the 1923–25 Division, and the Survey and Practical Working Plans examinations were held during this tour.

The students aligned roads in Governor's shola and Muthinad Plantations, carried out practical thinnings and studied the various sylvicultural problems and forest areas of interest.

1924–26 *Division.*

April and May 1925 —*Bandyshola*, *Coonoor.*—The students built a culvert, aligned a road in the Coonoor Peak reserve and did the corresponding road estimate. They made charcoal themselves in camp and studied its manufacture at Rallia. They received practical instruction in thinnings, and inspected the various forest areas within reach of the camp.

Identification of various shola species was also gone into.

September and October 1925—*Walayar camp.*—This was the first visit to Walayar.

The students constructed a trestle bridge across a stream, and carried out various survey works.

Under sylviculture various sample plots were laid out to estimate the yield, areas were stock-mapped according to soil valuation, and the coppice system was studied. The nursery and areas planted were visited and closely observed.

November and December 1925—*Nedungayam camp.*—This as usual proved a very interesting and instructive camp. The various plantations of all ages both at Nilambur and Nedungayam were visited and studied, especially the younger plantations, and volume enumerations were carried out in a large number. The various research plots were studied in company with the Forest Research Officer. Rafting and Timber Transit Rules were gone into, two culverts were constructed, soundings and plan and estimate for a foot bridge to the new Rest House at Nedungayam were carried out, the new forest buildings at Karulai were visited, and areas were stock-mapped and mapped with the Trailer Tape. The students visited enroute the Beypore Depot and Saw Mill

January and February 1926—*Dhoni.*—The two problems of regeneration and exploitation were gone into, and the results of natural regeneration in the upper areas noted.

The various planted areas were studied, and many enumerations in different places were carried out. An area was mapped and stock-mapped with the Trailer Tape, and it is interesting to note that the results obtained were extremely close to the actual yield when the area was exploited later. An inspection path was aligned and the Saw Mill and kiln seasoning plant were studied in detail.

The study of the mechanical means of exploitation as usual was most interesting.

1925–27 *Division.*

September and October 1925—*Sadivayal.*—The new Juniors camped as usual at Sadivayal in September and October, where they were instructed practically in many of the basic rules of Forestry. Areas were stock-mapped by species, various areas were surveyed, a bridle path was aligned, and a certain amount of time was devoted to the identification of the different Forest species. A large bamboo clump was felled to ascertain what new shoots would appear by next camp. It will be refelled each year until no vitality is left.

November and December 1925—*Anaipadi.*—Owing to the construction of several buildings at Topslip the camp this year was shifted to Anaipadi.

The various regeneration areas were closely inspected, and the natural forest visited. In both places enumerations were carried out. The lantana areas were stock-mapped to show the spread of this pest, and three experimental plots to study the growth of the young teak were opened in each of the 1919, 1921 and 1922 plantations.

Areas to study the growth of natural seedlings of *Adina cordifolia* and *Stephegyne parviflora* were opened but results were vitiated by browsing.

January and February 1926—*Kargudi.*—In this camp as usual early burning was studied practically. An area of 60 acres was enumerated by species and volume estimated. Planted areas were examined and the natural sandal forest at Masinigudi was visited.

4. *Tour Journals.*—A record of all work done in camp is maintained in the form of Tour Journals and District Forest Officers are informed of any work carried out by the students which it is considered might be of use or interest to the district.

5. *District officials.*—The very warm thanks of the College are due to the officials of the districts visited who so kindly not only did all in their power to make our camps comfortable but went out of their way to show us all that is of interest in the locality. Although busy, they always had time to spare for instruction of the students and the students learnt a great deal from them.

6. *Inspections.*—The students were inspected in camp in the Nilgiris by the Home Member, the Hon'ble Khan Bahadur Muhammad Usman Sahib Bahadur, and the Chief Conservator of Forests.

7. *Swimming.*—During the Nedungayam and Kargudi camps the students of both Divisions were taught to swim, and many of the students were extraordinarily good.

Student L. G. Lagu of the Senior Division was adjudged the best long distance swimmer and was awarded a medal by the Athletic Club.

8. *Health.*—The students while at the College are subjected to semi-military discipline. There is no doubt that the College system of regular exercise consisting of compulsory games and daily physical training combined with regular medical attendance turns out a very smart healthy student. The difference between a class on arrival at the College and on departure is most marked.

On the whole the general standard of health has been satisfactory.

9. *Conduct and discipline.*—The standard of discipline at the College has been satisfactory and the conduct of the students good.

CHAPTER IV.

THE GASS FOREST MUSEUM AND COLLEGE LIBRARY.

1. *Museum.*—Mr. G. Viswanatha Ayyar, B.A., the Curator, was in charge of the Museum throughout the year.

An appeal was made to a large number of Forest officers of the Presidency to endeavour to contribute interesting specimens to the Museum, and the results are encouraging.

A large number of photographs was added to the collection; about two dozen from the Forest Engineer, showing tractor at work

at Dhoni, and a number from Messrs. A. A. F. Minchin, J. M. Sweet, and J. L. Harrison, showing elephant capturing operations, etc.

Seedlings of three more species of sylvicultural interest were exhibited showing different stages of germination, and more descriptive labels were prepared for exhibits of Minor Forest Produce. About 360 samples of timber were made for identification purposes.

Experiments were made with an ordinary camera and a microscope to see if photo micrographs of any value could be obtained. The results were encouraging, and fairly accurate reproductions were obtained for some of the soft wooded species.

The Museum was visited during the year, by the Hon'ble Sir Muhammad Habibullah, Member, Viceroy's Council, the Hon'ble Khan Bahadur Muhammad Usman Sahib Bahadur, Member of Council, Madras, and the Hon'ble Sir T. N. Sivagnanam Pillai, Development Minister, Madras.

That the museum continues to afford instruction and interest to visitors is shown by their increase in number from 24,495 to 26,641.

A few lectures were given by the Curator, to the senior students of the College, on Timber Identification, and systematic Botany.

2. *Library.*—112 books were added to the General Library.

CHAPTER V.

SUPERVISION, WATER-SUPPLY, ROADS, BUILDINGS, ETC.

1. *Supervision.*—Mr. A. Marudachallam Pillai continued as Overseer throughout the year.

2. *Office establishment.*—The office establishment carried out their duties in a very satisfactory manner.

3. *Roads.*—The relay of roads in front of and around the museum was completed during the year at a cost of Rs. 2,618. All the existing roads have been kept in repair.

4. *Buildings.*—Necessary repairs to the hostel and other buildings under the control of the Principal were executed during the year.

Rs. 175 was spent for construction of Instructors' sheds at Kargudi and Nedungayam.

5. *Athletic ground.*—During the year Rs. 166 was spent for improvements to hockey and football grounds.

CHAPTER VI.

GENERAL.

1. *Stock-taking.*—The stock of the College was checked in detail in July 1925 by the staff of the College and the articles missing or unserviceable were written off under proper sanction.

2. *Athletics.*—The athletic sports were held on 16th September 1925 in excellent weather.

The Richmond Cup, which is awarded to the student obtaining the greatest number of points in the more important events was won by student Muhammad W. K. Khokar with 24 points, the runner up L. G. Lagu scoring 19 points. Competition was keen and both students are to be congratulated upon their performances.

The Cowley-Brown Cup for Inter-Division Hockey was won by the 1921–26 Division by two goals to one after a hard fight.

The Marathon Race was run off at headquarters on 20th February 1926 over a 7-mile cross country course, and was won very easily by the present Senior Division (1925-27 Division) so securing the Inter-Divisional Cup presented by the late Rasildar Major Amir Muhammad Khan Sahib. The first man home was student R. B. Gupta who completed the course in $46\frac{3}{4}$ minutes, winning the cup presented by M.R.Ry. K. Rama Raja Mannarghat Mupil Nair Avargal.

The Pentland Shield for the best all round athlete in the College, awarded in June 1925, was won by Khan Muhammad of the 1923–25 Division. He won this shield in the previous year also as a student of the Junior Division.

The Fischer Cup for Tennis was won by the same student.

The Cricket Team after beginning the year well by defeating the Gymkhana Club in a close game went badly to pieces and the College again failed to secure the local tournament shield. It is unfortunate from the College point of view that this tournament is played in August and September when the senior students have left the College and there has been no time to train the new comers.

At the Grigg Sports the College did moderately well and did not retain the aggregate cup for open events which the College so easily won the year before.

The Hockey Team this year was distinctly good and we had every hope of winning the local hockey tournament. The first two rounds were won fairly easily, but the College was defeated in the final, after a very hard and close game.

The post of vice-presidentship of the Athletic Club was held by the following officers :—

Name of officer.	Period held.
Mr. J. A. Wilson	1st April to 17th December 1925.
Mr. V. G. Darrington	24th December 1925 to 31st March 1926.

C. R. F. WILLIAMS,
Principal, Madras Forest College.

COIMBATORE,
29th August 1926.

Statement 1 showing the revenue and expenditure of the Madras Forest College, Coimbatore, during 1925–26.

Budget head.			Amount.
Receipts.			
VIII (e) Miscellaneous—			RS.
Forest College			66,102
Rent of buildings			2,355
			68,457
Deduct refunds ...			1,505
Total receipts ...			66,952
Expenditure.			
Pay of Officers—Non-Voted			18,902
Do. Voted			19,662
Pay of Establishment			19,773
Travelling allowance			10,497
Honoraria			855
Non-Contract Contingencies—			
Non-voted—			
Rates and taxes			17
Voted—			
Pay of menials			3,542
Books and Periodicals			294
Miscellaneous			3,704
Works—			
New works			175 *
Repairs			5,465 †
Supplies and Services—General—			
Apparatus and Materials			2,373
Miscellaneous			4,175
Grants-in-aid—Miscellaneous—			
Athletic club			400
Deduct—			89,839
(1) Revenue realised Rs. 66,952.			
(2) Expenditure on museum—	RS.	RS.	
Pay of Curator ...	1,358	...	
Pay of museum watchers and other sundry expenses including works in connexion with exhibits ...	468	1,826	68,778
Net cost of the College ...			21,061

* Incurred by District Forest Officers, Nilgiri and Nilambur.

† Includes Rs. 975 spent by other District Forest Officers for repairs of College sheds.

Statement II—Madras Forest College, Coimbatore, 1925-27 Division

Serial number and name of student.	Circle or State to which attached.
1. A. N. Rao	I Circle.
2. P. G. Rao	Do.
3. C. H. Ramamurthi	II Circle.
4. A. S. Sarma	V Circle.
5. R. Rama Ayyar	Do.
6. K. Poovappa	VI Circle.
7. T. M. Janardhanam	Engineering Department.
8. K. S. Muhammad	Do.
9. Fankey Lal	Central Provinces.
10. S. M. Ansar Ali	Do.
11. Boota Singh	Do.
12. S. M. Pitalay	Do.
13. Muhammad Shaffi	Do.
14. A. J. Misal	Do.
15. Hukum Singh	Do.
16. H. R. Dutt	Do.
17. K. K. Bakshsi	Do.
18. B. T. Gattewar	Do.
19. J. Bahadur Singh	Do.
20. J. N. Sud	Do.
21. A. Khan	Do.
22. Kashmiri Lal	Do.
23. B. P. Sharma	Do.
24. U. Tiwari	Do.
25. B. B. Mehta	Do.
26. S. H. Hamid	Hyderabad.
27. D. A. Khan	Do.
28. R. B. Gupta	Bihar and Orissa.
29. D. C. Patnaik	O.F.S. (Dhenkanal).

Statement III to the Administration Report for 1925–26.

Abstract showing the live-stock, stores, tools, etc., in the Madras Forest College, Coimbatore, for the year ending 31st March 1926.

Description of stock.	On hand at the commencement of the year.		On hand at the end of the year.		Difference in value in favour of the year.	Difference in value against the year.
	Number.	Amount.	Number.	Amount.		
		RS. A. P.		RS. A. P.	RS. A. P	RS. A. P.
Survey and other instruments.	1,828	5,491 14 6	1,876	6,018 1 7	526 3 1*	..
Tools	870	960 14 0	948	1,075 10 8	174 12 8*	..
Furniture	1,697	20,892 14 11	1,798	22,551 2 10	1,658 3 11*	..
Uniforms	65	159 9 6	54	146 10 2	..	12 15 4†
Scientific apparatus ..	1,352	228 10 3	1,337	147 1 3	..	81 9 0
Photographic articles.	19	260 6 0	19	95 6 0	..	165 0 0
Gymnasium ,, ..	9	307 1 6	9	288 0 8	..	19 0 10
Machinery and oil-engines.	2	2,089 1 0	2	1,969 6 6	..	119 10 6
Miscellaneous articles .	1,136	2,104 13 5	1,077	1,776 3 2	..	328 10 3
Tents	77	2 11 6	77	991 3 3	988 7 9	..
Total ..	7,055	32,438 0 7	7,197	35,058 14 1	3,347 11 5	726 13 11

* Increase due to revaluation.

† Rs. 310-8-0 value of clothes issued.

ANNUAL REPORT ON THE WORK OF THE FOREST ENGINEERING BRANCH FOR 1925-26.

The year in review has been one of steady progress. As organization proceeded both officers and men became more accustomed to the work in hand, labour gradually became more skilled, the preliminary work of getting into touch with markets began to show results, and the year closed with more tangible results accomplished and with encouraging prospects ahead of the coming year.

2. There were few changes in staff during the year. Mr. H. P. Ward remained in charge of the Forest Utilization Branch for practically the entire period until relieved by Mr. J. W. K. Wernham, who returned from the United States in March. Mr. M. F. Bridge returned from Dehra Dun in October and took over charge of the Forest Economist's post holding charge until he proceeded on leave in February. Mr. Muhammad Abdul Hafiz was placed in charge of Minor Forest Products during the year and made a good start in organizing that much neglected aspect of utilization. Major Chipp remained in charge of the Exploitation Division during the year and in addition took over the installation and organization of the new forest saw mills. Mr. J. A. Wilson started training in Exploitation in December and took over the Exploitation Division at the end of the year. Mr. H. A. Irwin, on return from leave, resumed charge of the engineering construction work in July and Mr. J. K. Pearce, Logging Engineer, proceeded on leave in August, returning in February. His work was carried on during his absence by Mr. P. W. Davis who was loaned by the Working Plans Circle for the period in question.

3. The various activities of the branch were as follows:—

I. Chenat Nayar Exploitation Division.

(a) *Logging and Extraction of Fuel.*

4. The improvement in both production and the decrease in cost continued as shown in the appended table, there being

much less fluctuation in production costs than during previous years.

Month.	Outturn.		Cost per cubic foot.	
	1924-1925.	1925-1926.	1924-1925.	1925-1926.
	C.FT.	C.FT.	RS. A. P.	RS. A. P.
April	13,877	8,101	1 4 8	1 2 6
May	12,164	10,668	1 6 4	1 0 7
June	2,339	9,285	3 14 7	1 0 4
July	1,729	* 4,015	4 6 0	1 9 9
August	Nil.	* 2,874	..	1 14 10
September	Nil.	6,536	..	1 5 0
October	3,606	13,917	2 9 1	0 14 11
November	15,194	40,920	0 15 9	0 12 6
December	16,782	30,128	0 14 11	0 12 8
January	14,391	21,068	0 14 1	0 13 8
February	9,571	18,069	0 15 7	0 14 3
March	9,107	21,638	1 0 9	0 14 3
Total ..	98,760	1,87,219	..	..
	10 months	12 months		
Average per month ..	9,876	15,601	1 13 4	0 14 6†

* Unit working at Mount Stuart. Logging operations closed down for monsoon.

† The 1924–25 figure is an average of acreages. Re. 0-14-6 for 1925-26 is the total c.ft., divided into total expenditure.

5. There will not be much further reduction in production costs this year as the operation has steadily been moving back in the hills but as the saw mill is now taking in over 20,000 cubic feet per month we will have to gradually increase the production of logs which will tend to further reduce costs. In 1927–28 when the extraction moves to the Elival Valley and we add a new and more productive machine we may look forward to a really profitable operation with costs down to a low level. A new double Fordson skidding machine will be needed to meet new logging conditions and to increase the outturn.

6. In general, our logging has advanced very satisfactorily and the organization is becoming more experienced. We may look forward to steady progress until the extremely favourable results forecast in the original report on this project are reached. This looked toward an annual outturn of over 20,000 tons and an overall log cost of 8 annas per cubic foot.

7. Fuel extraction could not be carried out to the extent hoped for due to the scarcity of carts, to the fact that fuel operations often interfered with the logging work, and because for the first 9 months it was found necessary to use forest fuel for the saw mill. With increased production at the saw mill we now have enough waste

from sawing to run the mill engines, a condition which was originally looked for in the saw mill proposals. The demand for fuel is also picking up, so we may expect an increase in the revenue from this source next year.

(b) *Olavakkot Saw Mill.*

8. The operation of the saw mill was hampered by unforeseen breakdowns to machinery and by the difficulty in obtaining and training skilled staff.

Full production was not obtained until March and it will be seen from the production statements that the mill has gradually improved in operation until it is now on a very satisfactory basis with demand exceeding supply for its product.

SAW MILL—OLAVAKKOT.

Month.	Intake logs.	Outturn.	Percentage of conversion.
	C. FT.	C. FT.	PER CENT.
April and May	8,067	5,909	73
June and July	7,462	4,159	56
August	6,402	3;271	51
September	5,804	4,075	70
October	1,456	669	46
November	882	629	78
December	4,265	3,031	71
January	7,858	3,955	50
February	5,775	4,926	85
March	15,734	4,748	30
Total ..	63,705	35,372	..
Average per month ..	5,309	2,948	51

The large variations in percentage of outturn are due to the present form of accounts which do not show floating stocks partially converted, but not taken into stock. This condition is being corrected.

65 per cent conversion was promised in the mill estimates. The lower conversion figure was caused by the mill having to saw stocks of deteriorated logs. It will improve.

9. The predicted cost of the mill product was only reached in one month, but that month showed it could be done. With increased production which is now attained all products can be manufactured at a cost which will allow of sale at a profit.

Monthly sales have increased from a little over Rs. 2,000 per month at the beginning of the year to over Rs. 18,000 per month at the close.

Rupees 23,751 worth of logs were sold during the year and firewood sales had about doubled by the end of the year.

10. Last year the problems lay in increasing production and enlarging markets. The situation now is satisfactory in both respects but we are still suffering large losses from the deterioration of log stocks. With the mill cutting more than the present logging production aided by the monsoon shut down of logging, it is expected that the coming year will see this condition much improved. Should a plant be erected in South India for the preservative treatment of sleepers, which is hoped for, our largest losses in this regard would be stopped at once as the timbers which give the most trouble have been accepted as sleeper woods subject to such treatment. The condition is also being improved monthly by the increasing use of timbers for which we have had no market in the past.

11. The past year on the whole has shown real progress and it is hoped that the Olavakkot scheme will soon be able to pay its way and eventually to return a profit on operation.

12. Forest Exploitation Officer's Annual Report—1925-26—Chenat Nair Exploitation division—Logging—

"1. At the commencement of the year under review, work was fairly underway in Sappal Valley and the new system of logging and organization began to show results, as the yield of standing timber per acre increased, the outturn correspondingly grew and extraction costs came down, until during the latter part of 1925 an average daily outturn of 1,000 cubic feet per day was maintained for over 100 days. During the month of November all records were broken by an outturn of 40,900 cubic feet in 24 working days.

"2. In the early part of the year work was somewhat hampered owing to shortage of carts, but by recruiting cartmen from farther afield this was got over by October 1925, since when an adequate supply of carts has been maintained.

"3. Only two engines were worked in the forests, a five-ton Holt Caterpillar tractor fitted with a winch attachment, and a Fordson engine with M.A.C. Hoist attachment fitted on a sledge.

"A certain amount of time was lost by breakdowns which occurred to parts the duplicates of which were not in stock. Substitutes and makeshifts to carry on with were made by the staff and time which would otherwise have been lost in obtaining new ones from the maker's agents was saved. The Indian agents of both makes of machines appear to carry very meagre stocks, and take many months to obtain others when required.

Saw Mill

"1. Work really commenced in early April, but owing to various circumstances over which we had no control delays occurred in working up to full output.

"2. The ground became water logged from monsoon rains and several of the foundations gave way and had to be rebuilt on more substantial lines, partly owing to the above cause the main bevel pinion of the break down saw broke, and although a new pinion was made in Madras the workmanship was

so bad that the machine could only be run at a greatly reduced speed, it was not until a new pinion was obtained from United Kingdom that the machine could be worked all out.

"3. In December a band re-saw was received from Russellkonda and brought into work, at the same time two other machines were moved to more advantageous positions in order to facilitate the continuous movements of timber from one machine to another the results soon became apparent in the increased outturn and decrease in handling charges.

"4. From the commencement the mill has been almost entirely engaged upon cutting for orders, and only small quantities of stock obtained from unsuitable logs has been sawn.

"5. The chief difficulty experienced has been in obtaining skilled operators for the various machines, this appears due to the fact that modern saw mill machinery is practically unknown in South India. Two or three good operators were obtained and the remainder have had to be trained from local men, who fortunately for the department are quick and intelligent in learning new work, still they at present lack experience which is an all important point where modern high power machinery is concerned, this can only be overcome by years of steady work.

"During the year much progress has been made in the utilization of Shola species.

Examples are—

(1) *Venteak.*—During the year this timber has made its name in the Madras Motor bus building community.

(2) *Acrocarpus fraxinifolius.*—Practically unsaleable at the beginning of the year; this timber is one of the most popular for cart shafts. For this purpose alone we have sufficient demand to absorb the whole of our outturn.

(3) *Polyalthia fragrans.*—Unsaleable up to December when it became popular for tea boxes. Demand now exceeds supply. Also marketable in small quantity for billiard cues.

(4) *Elaeocarpus tuberculatus* has proved suitable for tea boxes. Demand exceeds supply.

(5) *Calophyllum tomentosem.*—This species is finding a market with the railways. Provided it is cut from straight grained logs it seasons well in the kilns, and is likely to be popular as boarding. A contract for 15,000 cubic feet was completed during the year.

Kiln.

The kiln has been fully employed during the whole time that the mill has been working. Every species of timber sawn in the mill has been kiln seasoned for one purpose or another, and although some species are very refractory and require constant attention and various special treatments the success attained in this section has been highly satisfactory.

The bulk of the work has been boards for box shooks but such various items as picture backing, billiard cues, motor-car bodies, etc., have been most successfully seasoned.

Visitors.

During the year the works were visited by His Excellency the Governor, Lady Goschen and personal staff, the Hon'ble Finance Member, the Hon'ble Home Member, Inspector-General of Forests and various Members

of the Legislative Council. Also a number of Forest Officers, Railway Officials and others interested in logging and sawing operations from various provinces paid visits lasting for several days.

The Provincial students from Dehra Dun also camped on the works for some fifteen days.

Professor Stebbing of Edinburgh visited the forests and mills for the purpose of obtaining information for his forthcoming book.

Charge.

Charge of the division was held by the undersigned during the year under review.

In December 1925 Mr. J. A. Wilson, Senior Instructor, Madras Forest College, reported for duty and assumed full charge of the division from the commencement of the present financial year.

Chain of responsibility in Exploitation division.

Forest Exploitation Officer.

Felling and Logging Superintendent.		Transport Superintendent and Construction.		Saw Mill Manager.	Kiln Seasoning Expert.
Felling.	Logging.	Transport.	Construction.	Saw Mill.	All seasoning.

Percentage of time lost by staff Regular workmen through fever.

April	33·1	November	7·0
May	24·13	December	10·0
June	12·2	January 1926	10·60
July	No work.	February ,,	13·33
August	...	March ,,	26·60
September	4·31		
October	14·10	Average on ten months	=15·53"

II. Tinnevelly Evergreen Forests.

13. The extended investigations in these forests have culminated in a very promising development.

Further tests on the value of the Eta bamboo for paper making have been so satisfactory that a well established Indian Company is taking steps to approach Government in respect to the establishment of a modern paper plant in connexion with the hydro-electric development at Papanasam. The Eta areas have been surveyed and inspected by an experienced engineer representing this company. He is satisfied that sufficient raw material exists for the supply of such a plant and from present indications it seems certain that the Eta will reproduce itself in at least 4—6 years under proper cutting regulations. Experiments are now proceeding to see how this may best be accomplished.

14. The detailed work carried out in these forests will be summarized in Mr. Pearce's report.

15. Once the hydro-electric development and paper mill are assured we can go ahead with the further development of the forests including extended fuel working, under very favourable circumstances.

III. Logging Engineering.

16. As last year the account of the work done under various projects looking toward the survey and valuation of the forest resources of the Presidency can best be presented in Mr. Pearce's report which covers all details of the work in hand.

17. *Copy of Logging Engineer's Report for* 1925-26—

"A number of changes occurred in the personnel of the Logging Engineering division during the year under review. The Logging Engineer, Mr. J. Kenneth Pearce, was in charge of the division only until 14th August 1925, the date of expiry of his agreement, when he proceeded home. Mr. P. W. Davis, Assistant Conservator of Forests, took over charge of the division with the designation of Exploitation Working Plans Officer, and remained in charge during the remaining 7½ months of the official year. A new agreement having been made with the Secretary of State for India, the Logging Engineer returned to Madras on 22nd February 1926, but was placed on special work and did not take over charge from Mr. Davis until the beginning of the new financial year. Mr. K. T. Matthew, Assistant Conservator of Forests, was transferred from the Logging Engineering division for District office training in October. Mr. B. A. Cariappa, Extra Assistant Conservator of Forests and Assistant Working Plans Officer, remained with the division throughout the year.

"The special temporary foresters having been trained and developed into capable topographers and cruisers, all but six Rangers were reverted to the regular line in June. All but three of the permanent foresters were likewise reverted. Two foresters, Janardhanan and Sheik Muhammad were deputed to the Madras Forest College.

"Field work on the Papanasam, Someshwar, Elival and Nulkur projects continued during April and May 1925. With the break of the south-west monsoon in June the field parties were transferred to Ootacamund, where the office work of compilation of maps, cruises, surveys and other field data collected during the preceding year was undertaken at the Working Plans Circle office. This programme was adopted for the following reasons: (1) The monsoon greatly interferes with enumeration field work on the West Coast. (2) Loss of time in the field during the best working season is saved by doing only the essential office work, leaving the bulk of it for a time when field work cannot be done. (3) The important work of final compilation is more efficiently done under the direct supervision of the head of the division. (4) The change to the healthy climate of the hills enables the men to recuperate from the long period of hard work in malarial jungles, and to fortify their constitution for the following season's field work.

"The officers attached to the Logging Engineering division, the Head Surveyor, six Rangers, and eleven Foresters were engaged in the office compilation work. One forester was left at Kodamadi in charge of the

bridge materials, and four foresters were loaned to the Working Plans Circle for special survey work for varying periods, while the office work was in progress.

"Office work was carried on in Ootacamund until the end of September, and in October field work was resumed in the Papanasam and Someshwar projects, and two new mapping and cruising projects, Kallidikode and the Anamalais instituted. Field work continued for the balance of the year under review.

"*Papanasam Project.*—The survey for a flume for reed extraction was carried on during April and May, $4\frac{1}{2}$ miles of line being theodolite traversed and dumpy levelled and $3\frac{3}{4}$ miles accurately topographed with 5 feet contours. The timber for a suspension bridge across the Serviar at Kodamadi was also cut and sawn. During the office work period the entire flume line of $8\frac{1}{2}$ miles was plotted on a scale of 100 feet to the inch after calculating latitude and departures and the topography traced on to the plotted sheets.

"The wire rope for the Kodamadi bridge arrived in October but heavy rains and consequent floods prevented taking up the erection of the bridge until January, when Mr. H. A. Irwin, Forest Engineer, was placed in charge of the work. Ranger Vriddhachalam and one forester were loaned from the Logging Engineering division to the Forest Engineer.

"On the 9th January the survey of the reed area of Papanasam reserved forest commenced under the direction of Mr. Cariappa as instructed by Mr. Irwin. A compass traverse was run along the fringe of the reed, tieing to the Travancore boundary, so as to obtain the correct acreage of the reed area. Thirty-two miles of line was run up to the end of March. A path was also cleared from Martin's Hut in Kannikatti Range to Wood's Hut in Kodamadi Range, a distance of about ten miles.

"Mr. Cariappa also made a reconnaissance of the reed areas in Singampatti Zamindari and Kuttalam forest.

"The Reed Survey Party consisted of Ranger Ponnayya and four foresters. In February two permanent foresters from the regular line were also posted to the Papanasam project.

"*Someshwar Project.*—The party under Mr. Matthew continued mapping and cruising in Someshwar reserve through April and May, covering about 2,400 acres. During the office period all of the topog and cover maps of the forested areas mapped during the preceding field season's work, totalling approximately 7,000 acres were completed.

"Field work on the Someshwar Project was resumed in October. Mr. Cariappa was in charge until the Christmas holidays after which Ranger Venkataraman assisted by Ranger Appiah carried on with seven foresters. Owing to scarcity of labour and illness only two parties could be kept going on the average. In March all but one 3 men party were down with fever. Someshwar reserve was declared an unhealthy tract in November. Thirteen miles of compass line run and 2,000 acres of timber mapped by the 31st March on the slopes of Barodi Ane, and in Kallanger, Megadde and Ugrambetti valleys. The field work of the entire Someshwar mapping and cruising project will be completed by June 1926.

"During the 1926 office season all the field data and maps for the entire Someshwar reserve of 18,000 acres will be compiled, and plans for its development drawn up."

"*Kalladikode Project.*—What is designated as the Kalladikode area lies on the north-western side of Chenat Nair reserved forest. This is the unit from which timber for the Olavakkot saw mill will be extracted after the Elival area is completed. To obtain exact information as to the stand of timber available, as well as enable operation plans to be prepared well in advance, the enumeration and mapping of the Kalladikode area was undertaken under Mr. Davis' direction with the resumption of field work in October. Nine and a half miles of theodolite baseline and one mile of compass traverse were run and 2,000 acres mapped and cruised by the end of March. The party was in charge of Ranger Monnappa with Head Surveyor Achuthan and four foresters. In March three new permanent foresters joined the party.

"The Ranger estimates that 22 per cent of the working time was lost because of malaria and 2 per cent through accidents, for which the steep slopes and rocks were responsible.

"The Kalladikode Project will be finished in April 1926, thus completing the mapping and cruising of the entire Chenat Nair reserve."

"*Elival Project.*—A few scattered patches of timber above the main forest of Elival remained to be done in April and these were completed early in May by Ranger Monnappa and two foresters. Approximately two miles of compass base line were run and 200 acres mapped and cruised. A reconnaissance of the Kalladikode area was also made by the party in May."

"The entire map of the Elival area of Chenat Nair reserved forest, comprising about 3,000 acres was assembled, traced and printed, cruise sheets converted to cubic feet, and typed, and a cover map showing the stand on every two acres compiled and printed during the office period at Ootacamund.

"*Nalkur Project.*—The Nalkur Project, which had been started the last of March was completed by the end of May. As some of the coupe was excluded by the District Forest Officer because of insufficient regeneration, only 960 acres were mapped. About three miles of baseline was run. Ranger P. A. Venkataraman was in charge of the field party of five foresters. Mr. Cariappa spent a short time with the party in April. The topographic map and cover maps were compiled, printed and issued in August.

"*Anamalais Project.*—Two field parties under the direction of Mr. Davis were engaged in mapping and cruising in the Kal Ar Valley, Anamalais, from 5th October to 19th December 1925. This is forested land which is being cleared for a Government Cinchona Plantation, and the mapping work was undertaken to determine the amount of each species of timber which might be extracted and to provide an accurate map to assist the Cinchona Department in planning their future road system, etc., the Survey of India topographic map having proved to be of little use for that work. The area mapped totalled 1,011 acres, with 381 chains of base line. Rangers Ponniah and Vriddhachalam were in charge of the field parties.

"A supplementary note to that written by Mr. Pearce in June on the possibilities of extracting and utilizing the timber felled on Cinchona Plantation Clearings was also submitted by Mr. Davis.

"*Collection of volume table data in Nilambur.*—Forester P. Subramaniyam was placed on special duty at Nilambur for three months collecting field data for compilation of volume tables in the 1925–26 Conversion Working Circle. As the trees were felled and bucked into logs, the girth and breast height, mean girth, length of bole, and length and mean girth of each log

cut from the tree to obtain the volume in cubic feet were recorded. Nine hundred and sixty-three trees were thus measured. The forester also made an enumeration of standing timber in the Natural Forest coupe, New Amarampalam Reserve, for the purpose of estimating sleeper outturn.

"*The Logging Engineer.*—In addition to directing the Logging Engineering Division during the period 1st April to 14th August, and making frequent tours of inspection and instruction to all projects, the Logging Engineer was engaged in many special tasks Lectures were given at the Madras Forest College in May, and the final examination in Survey conducted in June. The saw mill at Pollachi was inspected and advice on new equipment proffered to the owners. The Meenakshi Paper Mills, Punalur, were visited to obtain information on reed regeneration, pulping methods, etc , for use in connexion with the Papanasam Development Project.

"In June the area in the Anamalais being cleared for Government Cinchona Plantation was inspected and proposals for utilizing the timber being wasted submitted to Government. As a result, an appropriation was made in the 1926–27 budget for the sawing and extraction of 6,000 sleepers from the year's clearing.

"While en route home in August and September a fortnight was spent in the Philippine Islands studying the methods of Forest Exploitation used in a country which has developed a huge tropical timber industry under conditions similar to those in Madras Presidency. A detailed report on 'Forest Exploitation in the Philippine Islands, with special reference to the relations between the Bureau of Forestry and the Private Lumbering Companies operated in Government Forests, and the mechanical logging and milling methods in use' has been written, and contains much that should be of interest and value to Madras.

"The progress of Forest development in Malaya and Borneo was also investigated in brief visits en route. In the United States, although not then in the employ of the Madras Government, Mr. Pearce addressed numerous organizations of business men and lumber consumers on the Forests and Timbers of Madras and exhibited samples of Madras woods, which attracted a great deal of interest—interest which will have a monetary value to Madras when production on a large scale is reached, permitting export of timber in quantities sufficiently large to interest importers. Considerable time was also devoted to studying new logging and milling methods and equipment and obtaining prices and specifications of logging machinery.

"On returning to Madras late in February the Logging Engineer made a reconnaissance of the reed areas in the Kallakadu and other reserves to determine their extent and probable yield and was engaged with the preparation of cost estimates and other engineering details on the Papanasam Paper Pulp and Railway Project, and getting acquainted with what had been accomplished by the Logging Engineering Division during his absence."

17. Roads and Buildings.

18. The work on roads and buildings during the year was very satisfactory, a great deal being accomplished under somewhat adverse conditions.

Even with estimates reduced to the lowest amount thought possible before submitting for sanction, the year's work showed considerable savings over the total amounts sanctioned.

19. The work of this branch is increasing yearly and is proving more satisfactory than having the work done by outside agencies.

20. Administration report of the works under the Forest Engineer, Madras, for the year from 1st April 1925 to 31st March 1926—

"The Officers in charge of the Division during the year were—

(1) Major W. F. Chipp, D.S.O., M.C., 1st April 1925 to 6th July 1925.

(2) Captain H. A. Irwin, M.C., 7th July 1925 to 31st March 1926.

The works carried out during the year are—

(1) *Construction of the Top Slip Anaipadi Road—Estimate* Rs. 1,11,200.—The estimate for this road was sanctioned at the beginning of the year. The work was put in hand immediately. The work was pushed through with good effect and the earthwork and bridges and revetment were completed, during the year; the timber top to the bridge over the Chaklianparai stream being the only incomplete bridge. The expenditure during the year was Rs. 75,455-4-3.

(2) *Construction of a causeway across the Kabani River at Kolvalli, Wynaad district—Estimate Rs.* 29,000.—The estimate was sanctioned in G.O. No. 1397, Development, dated 23rd September 1925. The work was immediately put in hand by posting a subordinate and the work was started by collecting labour and doing a small quantity of earthwork to one of the approaches. Meanwhile a report from the Forest Engineer, Madras, showing that cartage would be cheaper by building roads in the reserve forests, Wynaad, and carting the timber to Nanjangode depot instead of Mysore depot, the construction of the road dam was cancelled. The expenditure on the work was Rs. 352-11-7 only.

(3) *Construction of the buildings at Top slip—Estimate Rs.* 54,000.—The estimate for housing the subordinates employed at Mount Stuart and also constructing a rest house for the camping officers, with necessary accommodations for servants, etc., was sanctioned in G.O. Mis. No. 649, Development, dated 1st May 1925.

Necessary detailed estimates for each building was prepared and with economy the whole cost was reduced to Rs. 47,600.

The work was put in hand immediately by recruiting labour. The extraordinary monsoon during the year when we had heavy rains in all the months from July 25th to January 26th greatly retarded the progress of the work.

The Ranger in charge of the work fell ill in February and went away on leave. Owing to his absence, the work also suffered a little, but great efforts were taken to reassemble the labour and push on the works. All the buildings except the rest house and servants' quarters were practically completed during the year. The expenditure on each work is given in detail in Form No. 70.

(4) *Construction of Water-supply Reservoirs at Top Slip.*—This work forms a part of the construction of the buildings at Top Slip. The construction of this is intended for the supply of water to the colony at Top Slip. The work has been completed. The expenditure on the work up to end of March 1926 was Rs. 1,168-15-6. The excess over the estimate of Rs. 1,000 sanctioned for this work is due to the cost of certain pipe fittings intended for the Rest House having been erroneously charged to this work. Necessary alteration memorandum has been submitted for adjustment.

(5) *Remetalling the New Mount Stuart Ghat Road—Estimate Rs.* 16,600 *—Revised estimate Rs.* 16,820-8-11.—The surface of the New Mount Stuart Ghat Road was badly cut up owing to the heavy timber traffic. The estimate was prepared for remetalling the whole portion and also maintaining it in good order. The road has improved this year but requires a heavy road roller to get it into a really good road and an estimate has been sent in for the purchase of a heavy road roller. The expenditure on this work during the year was Rs. 16,820-8-11.

(6) *Construction of a footway suspension bridge* 200 *feet span over the Serviar River at Kodamadi—Estimate Rs.* 650.—This was completed a week after the close of the official year. The estimate was exceeded, but a revised estimate has been submitted for sanction of the excess.

(7) Forest Engineer, Madras, supervised during January 1926, the Logging Engineer's Survey Party engaged on survey work in the Tinnevelly Forests.

(8) Necessary survey for the masonry dam reservoir and pipe line was completed also plan, estimate and report were made out and submitted for the pipe line water-supply scheme to the new forest station at Top Slip.

(9) Plans and estimate were prepared and submitted for sanction for two District Forest Officers' quarters at Mangalore and one District Forest Officer's quarters at Kurnool.

(10) Survey plan and estimate and report for the construction of a road from Olavakkot to Chenat Nair forest boundary was prepared and submitted for sanction.

General.—The following officer and subordinates were working under the Forest Engineer during the year:—

(1) Mr. C. J. Van Haeftan, Extra Assistant Conservator of Forests was engaged in supervising the work of the two Rangers in charge of the road works and building works.

(2) Mr. R. E. Lemos, Ranger. This subordinate was employed on (1) preparing plans and estimates for the Elival road construction and (2) building works at Top Slip. He fell ill in the beginning of February 1926, and went away on leave.

(3) Mr. C. H. Ashe, Ranger. This Ranger was in charge of the New Mount Stuart Ghat Road and the Anaipadi Top Slip Road.

(4) C. Sridhara Mannadiar, Forester. This forester worked under Mr. C. H. Ashe, in the beginning of the road works. He was sent to the Kolvalli crossing work. On its abandonment, he was retransferred to Mount Stuart. During the absence of Mr. Lemos, he was posted to the charge of the building works.

Clerical establishment.—The office consists of one Accountant and Manager, two clerks, one typist and one tracer. Of these one is a camp clerk.

A statement showing the expenditure on all the works during the year in Form No. 70 and a Form No. 85 are herewith submitted.

Forest Engineer, Madras, was in camp for 213 days from 7th July 1925 to 31st March 1926.

V. Utilization and Economic Branch.

21. This work has really gotten under way during the past year and has begun to produce concrete results.

The sales and general commercial information as to available supplies of forest products should all eventually be handled by this agency which is specially trained for the work in hand.

That this is gradually being brought about is shown by the amount of business handled and by the increasing volume of enquiries.

The work of this branch will increase in importance during the coming year as the past year has opened up a very large field of work. Such opportunities will be taken advantage of to a much greater extent during the next year as the staff are able to gain experience and make use of the information they have been collecting in past months.

22. *Report on the work of Forest Utilization and Forest Economic branch for the year ending* 31*st March* 1926.

General.—The aims and objects of these two branches were very fully explained in the administration report for 1924–25, so there is no need to repeat them. The work that year consisted mainly in organizing the personnel and general schemes to be adopted in the future. During the year under review great strides were made towards the fulfilment of these schemes, in spite of the fact that it was the first year that anything had been done towards systematic utilization of Madras timbers and that during the greater part of the year the Forest Economist's branch was greatly handicapped by the absence of Mr. Bridge who was on deputation at Dehra Dun from the commencement of the year up to the 12th October, during which time the Forest Utilization Officer carried on the work of Forest Economist in addition to his own duties.

Personnel.—(*a*) The post of Forest Utilization Officer was held by Mr. H. P. Ward from April 1, 1925, until March 9, 1926, when he handed over to Mr. J. W. K. Wernham on his return from America where he had been studying American methods of utilization, logging, saw-milling, etc., for 18 months.

(*b*) The post of Forest Economist was held by the Forest Utilization Officer from April 1 until October 12 in addition to his own duties. Mr. M. F. Bridge took charge from October 12 until February 9 when he went on long leave. Mr. H. P. Ward held charge for the rest of the year.

(*c*) The post of Assistant Forest Utilization Officer was held by Mr. Md. Abdul Hafiz from 1st April 1925 to 31st March 1926. During the year he has been investigating the sources of supply, markets, methods of extraction, etc., of minor forest products. A separate report written by Mr. Abdul Hafiz is attached.

(*d*) Two Utilization rangers were attached to the Forest Utilization Officer for the whole year. Their duties were fully dealt with in last year's report. Ranger A. Swami Kutti with headquarters at Calicut did excellent work; he obtained several very useful orders and did some very useful propaganda work. He visited very nearly every tea estate in the Nilgiris and Wynaad and the results of his labours are already bearing fruit. Ranger V. S. Subrahmanya Ayyar with headquarters at Trichinopoly was not so successful. This part of the country obtains all its timber either from Burma or Travancore very cheaply and, until the railway from Pollachi to Dindigul is running, it does not look as if West Coast timbers will be able to compete. This ranger went on leave for two months on 7th December 1925

and his place has been taken by Ranger Benjamin who is at present in charge of the depot at Madras.

Forest Utilization branch.—It has been mentioned previously that the year 1924-25 was spent in organizing this branch with the result that practically no sales were effected, but during 1925-26 the orders which were received through the Forest Utilization branch realized a gross revenue of about $3\frac{1}{4}$ lakhs of rupees. This was mainly due to the Saw Mills at Olavakkot and Beypore which started operations at the beginning of the year. It was not however until after the close of the year that these mills were working at full swing, so it is hoped to exceed this figure in future years. During the last few months of the year many orders on the Olavakkot Mill had to be refused owing to pressure of work, in spite of the fact that it had been found necessary to run two shifts which kept the mill working night and day. The orders received are too numerous and varied to give detailed accounts of each. They included railway sleepers, boxes, constructional timbers, furniture, timber for motor-buses, etc.

Sleepers.—During June Mr. R. G. Marriott, Timber Advisory Officer to the Railway Board, visited Madras in order to organize the supply of sleepers to the railways from the Forest Department. The outcome of his visit was that a meeting between the Forest Department and the Railway authorities was arranged and took place at Ootacamund in September at which the Railway authorities agreed to accept from the Forest Department all the metre gauge and broad gauge sleepers of teak, *Hopea parviflora*, *Mesua ferrea*, *Xylia xylocarpa*, which the latter could supply each year up to the limit of the former's requirements. It was agreed that the Forest Department should cut sleepers in advance of the Railway's requirements and they should be handed over when the Railways normally call for tenders in December for the ensuing year, but they would not be paid for until the following April, that is to say, sleepers cut between 1st of April and 31st December 1926, but would not be paid for until April 1927. During the year under review 11,120 broad gauge and 5,527 metre gauge sleepers were supplied in August and December against the 1925-26 supply and 2,331 broad gauge and 13,066 metre gauge and 8,000 narrow gauge sleepers were supplied in March against 1926-27 supply. All the sleepers supplied were passed by the Forest Utilization Officer.

Research.—The timbers which pass through the Olavakkot Saw Mill chiefly consist of species from the evergreen forests which hitherto were practically unknown on the market—in fact all the orders placed on the mill at the beginning of the year were for such species as venteak, pillamaradu, etc., which were already well known During the year, however, several evergreen species have definitely been established on the market, the most notable perhaps being poon, *Polyalthia fragrans*, *Acrocarpus fraxini folius*, *Elaeocarpus tuberculatus* and several others. The mill now has no difficulty whatsoever in finding sales for the four species mentioned—in fact in several cases the supply is not able to meet the demand.

Madras Depot.—During the last month of the year a site was selected in Sydenham's road for a depot, the object being to enhance the sales of sawn material in the higher class of timber such as teak, pillamaradu, rosewood, etc. Unfortunately no timber arrived until after the close of the year, so no sales could be effected.

Export of timber.—The tabulated statement attached herewith shows the quantity of timber exported to Messrs. Howard Bros. & Co., also the amount sold during the year.

" Messrs. Howard Brothers and Company intimated their desire to the Government of India to resign their Agency from 30th June 1926 which was accepted ; the Government of Madras accepted their resignation also. The date of termination has since been extended to 31st December 1926."

" *Results of transactions with Messrs. W. W. Howard Brothers and Company during* 1925–26."

Species.	Stock on 31st March 1925.	Quantity exported during 1925–26.	Quantity sold during 1925–26.	Net amount realized after deducting charges.	Stock on 1st March 1926.
	C.FT.	C.FT.	C.FT.	RS. A. P.	C.FT.
Laurel ..	1,123	2,986	2,545	41,668 14 0	1,564
		TONS. CWT. QRS. LBS.	TONS. CWT. QRS. LB.		TONS. CWT. QRS. LB.
Rosewood.	..	180 16 2 21	146 12 2 7		33 17 0 14
Kindal ..	259	..	..	..	259
Haldu ..	307	..	..	..	307
Koko ..	29	..	..	..	29
Teak ..	..	90	..	..	90

N.B.—This statement includes timber sent to Messrs. W. W. Howard Brothers and Company in connexion with the Exhibition.

FOREST ECONOMIST'S WORK FOR 1925–26.

" *The staff.*—One Imperial Officer, One clerk.

"The Forest Utilization office was set up to improve the organization of marketing forest produce. This work is based on a knowledge of the properties of the goods to be sold, the markets and prices, and the industries which use wood, sources of supply, cost of extraction and methods of distribution. But the work of the Forest Utilization Officer is mainly the application of this knowledge by arranging for supplies for definite works, and generally keeping in touch with the trade and laying before them suggestions for utilizing new woods as substitutes for imported timbers, or for purposes for which they had not been used before. It was soon found impossible for one officer to collect and co-ordinate the information already available and arrange for further tests and at the same time arrange for the marketing of the supplies extracted from Government forests, and to keep in personal touch with the timber-using industries in the Presidency. In June 1924, Mr. Bridge was attached to the Chief Forest Engineer's office to assist in the collection of information, and in April 1925 the post of Forest Economist was sanctioned. In the meanwhile, Mr. Bridge had been sent to Dehra Dun for deputation under the Forest Economist, Dehra Dun. It was not until 12th October 1925 that he returned and took up the duties of Forest Economist.

" *Library.*—The first work to be undertaken was the formation of an Utilization Library. A list of the best standard works on such subjects as Seasoning, Timber-testing and impregnation of wood was obtained and sanction for purchase was obtained. The books have been catalogued, and we are now in possession of the nucleus of an up-to-date library.

" *Ledger filing.*—On the same lines and as a supplement to the library is the system for ledger-filing. It is well known that in any line of study a book is almost out of date by the time it is printed ; so ledger files are opened for all important subjects and all fresh information is posted as it comes to hand. The work involved is considerable for it necessitates reading over a wide field of trade periodicals, scientific reports and bulletins. This

work involves technical knowledge and must be done mainly by the Forest Economist himself as it will take a great deal of training before a clerk can pick out articles of importance from the purely ephemeral.

" *Liaison with Dehra Dun.*--One of the most useful sides of the Economist's work lies in maintaining a close liaison with the Forest Research Institute, Dehra Dun. The Research Institute is ready to help us in every possible way but unless some officer is definitely in charge of all work done between the Presidency and the Forest Research Institute experiments are lost sight of, and we get out of touch. The Research Institute has splendid facilities for experimental work, it has the will to help us and it is of utmost importance that we do not lose the opportunity.

" In addition, the Forest Economist, Madras, inspected sleepers for Dehra Dun and reported on them.

" By arrangement with the Principal of the Engineering College, Guindy, preliminary tests can be carried out in Madras on timbers in order to ascertain if it is worth sending full consignments to Dehra Dun.

" Tests were carried out for sleeper wood on Strombosia ceylonica, Stereospermum chelonoides, and tests are being done on Polyalthia fragrans and Acrocarpus fraxinifolious.

" *Pamphlets and correspondence.*—With the data obtained from these sources, pamphlets are issued on various timbers to indicate their uses.

Pamphlets were issued on—
- Cullenia excelsa, } In April 1925.
- Dichopsis elliptica, }
- Lagerstroemia lanceolata

and notes on 15 species.

" Enquirers on various subjects are given any information possible. The practice of first committing oneself to expenditure on machinery and then enquiring about supplies of raw material and costs is very common and very deplorable. Anybody wishing to embark on an enterprise depending for raw material on Government forests should apply first to this office before committing himself to any expenditure. These remarks are apropos to several enquiries received for supplies for match factories from localities which were particularly unsuitable.

" Some work has been done in identifying timbers. This work is of importance because inferior species are often substituted for others. The office is not very well equipped for this work and indeed it would require a full-time specialist, if taken up thoroughly but it is easy to give negative information. It is generally easy to say whether a specimen is a definite species or not, but if it is not that particular species, it is often difficult to say what it is.

" *Personal Liaison.*—The Forest Economist has not found time to do much touring but there is no doubt from the experience gained at Dehra Dun that pamphlets and bulletins are not so efficient for propaganda purposes as personal visits. This is so far the best way for making known the aims and object of the Forest Department and at the same time getting hold of the needs of the business community.

Forest Exhibition (22nd December 1925 to 1st January 1926).

" An industrial exhibition was organized at the Peoples' Park Fair and the Forest Economist was instructed to exhibit a Forest Utilization Stall. Although the time given for preparation was inadequate, the stall attracted considerable attention and numerous enquiries were made.

Lectures.—"In November 1925, the Forest Economist delivered three lectures to the students at the Forest College, Coimbatore, on Timber-Testing, Wood impregnation and Seasoning.

"The question of issuing a timber measurement book for Madras was reported on, and information collected on the question of the standardization of timber grades. The success of saw milling is closely bound with the adaptations of standard lumber sizes, so that the mill can in spare time continue cutting in advance of orders. India is not yet ripe for this but the matter has come under consideration and endeavours will be made ultimately to achieve this end."

MINOR FOREST PRODUCE SECTION—1925–26.

Staff.—"The newly sanctioned post of the Assistant Forest Utilization Officer was filled by an officer of the Madras Forest Service who entered on his duties on the 1st April 1925. He was in charge of the Minor Forest Produce Section throughout the year, and also held additional charge of the office of the Forest Economist from 17th May to 12th October 1925.

"A clerk on Rs. 40 per month was entertained to work under him."

The chief items of work done—

Helping the trade.—"The right to remove Minor Forest Products from the reserves was leased out as usual by the Divisional Forest Officers to local contractors except in parts of Kurnool and Nellore districts, where they are collected departmentally, chiefly with a view to provide work for the local tribes—the Chenchus and the Yenadis. The chief item of the Assistant Utilization Officer's work has been to bring the contractor and the purchaser in touch with supplier. Numerous enquiries were received from contractors all over the Presidency who were kept informed of the suitable markets, for their products, and of the prevailing rates, and trend of the markets, both local and foreign. Such information was also communicated to District Forest Officers who asked for it.

"He was also in close touch with most of the persons and firms dealing in minor products, either as local distributors, exporters, or manfacturers, helping them to obtain their requirements by putting them in direct touch with the Forest Officer or contractor holding available stocks. The Superintendents of the Jails and other big institutions where large quantities of Minor Products are being used, were also advised of the stocks available with the Forest Officers and contractors. Negotiations were in progress to undertake such supplies departmentally wherever feasible.

"Of all the activities of this section, this is the most important under the present conditions of working."

"3. *Collection of information.*—He had to keep a sharp look out for useful information from other parts of India as well as the world, which entailed a perusal of many trade journals, bulletins and books.

"4. It was not always possible to furnish all the information asked for by the enquirers, as it was not available in this newly created office or elsewhere. The literature available on this subject is very scanty, and it was therefore decided to undertake a comprehensive survey of all the important minor forest products available in the forests of this Presidency to ascertain definitely their average annual yield, their methods of collection, treatment and disposal, their uses and markets, rates, etc., and to assemble all the available information about each product. In this connexion the Assistant

Utilization Officer visited most of the districts, interviewed the local forest officers as well as traders, in order to acquaint himself with the conditions obtaining in the mufassal, and also to verify the information collected and bring it up to date.

"Simultaneously lists of local plants and trees yielding economic products, e g., gums, tans, dyes, fibres, flosses, oil-seeds, etc., were compiled."

"5. *Scientific examination of some products.*—Even in the days when minor forest produce was treated as a sideshow, the value of systematic investigation was proved by the result achieved. So, in addition to the foregoing urgent items of work the scientific examination of a few products known to the commercial world, was commenced about the close of the year. To bring such an investigation to a conclusion, whether successful or not, often takes several months, if not years. Hence, it is not possible to record any striking results achieved during the year.

"*The products under investigation are.*—Catechu, Myrabolams, Divi Divi, Nux-vomica, Cassia auriculata bark, Cassia fistula bark, Hardwickia binata fibre, lemon grass, and 'Nandi and Umari.'

"Such investigation are rendered feasible by the active co-operation of the Special Chemist attached to the Leather Trades Institute, Madras, the Indian Institute of Science, Bangalore, and Forest Research Institute, Dehra Dun.

"6. *Other questions examined.*—Enquiries were instituted to ascertain the various systems of exploiting the minor forest produce in vogue in this Presidency, mainly with a view to examining the possibility of augmenting and regularising their output. This examination revealed the existence of different practices in different circles, and even among the divisions of a circle, in dealing with the same product. The results of any enquiries that have been completed are being brought to the notice of the Chief Conservator of Forests.

"7. *Establishment of a factory to manufacture Catechu.*—The Assistant Utilization Officer recently visited the Acacia sundra forests in the North Mangalore division, and examined the possibility of starting a factory for manufacturing Catechu from the mature trees exploited from the annual coupes. The results of his investigations are fairly encouraging, and there seems to be a good prospect of local persons starting such a factory, if assured of regular supplies of wood. The market for Catechu is steady and firm and the profits now being made are fairly alluring. The capital required for starting a small factory is not much, and regular supplies of wood are available. So the conditions for making a successful start appear to be favourable. Further the existence of such a factory will prove of great value when a very large number of mature trees become available in 1932.

"8. *Introduction of lac cultivation.*—Madras forests are said not to produce lac. Enquiries made of the District Forest Officers during December last elicited replies that lac is neither found wild nor cultivated in their divisions, which confirms the general opinion. But Madras forests contain many of the reputed host-plants of lac, e.g., *Butea frondosa, Schliechera trijuga, Zizyphus jujuba, Shorea talura, etc.*, and in localities which should prove fairly suitable for lac cultivation. The question of introducing it into such suitable portions of forests in this Presidency has been receiving considerable attention of late.

"9. This question is of great importance and needs careful examination and collection of information. Special training and staff are necessary to ensure success. Past failures in such experiments in Kurnool and Coimbatore prove the necessity for the same, and the measure of success achieved in Mysore, in a short period of five years, goes to confirm it.

"10. During February the Assistant Forest Utilization Officer visited some of the successful lac areas in the Mysore State, and also saw the lac experiments being conducted in the Institute of Science, Bangalore.

"11. As it was too late in the season to launch out an experiment on a large commercial scale, it was decided to make a start in one place at least, so as to gain practical experience of the conditions of the locality. An area containing Shorea talura trees in North Salem division was selected in the company of the Conservator and the District Forest Officer, and the trees lopped during March. Arrangements have been made to get the 'brood lac' from Mysore to infect the lopped trees, if ready during May next.

"12. *General observations.*—A very large number of products are being styled by the familiar name of minor forest produce. Some of these are already known to some extent, but a very large number are almost unknown to the commercial world. Therefore, in addition to the obvious field for further advertising known products, there is the much harder task of examining the new and little known products, of discovering their uses and persuading the public to adopt them. The time has come when such new sources have to be tapped and new products put on the market.

"13. Most of the dealers in the lesser known products are small business men, often without a knowledge of English and with a very hazy idea of what is wanted of them or what they can really do. It, therefore, becomes almost impossible to introduce any radical changes in the long established practices or to prevent adulteration. Still with the co-operation of a few big firms, an attempt was made to grade some of the products into definite grades according to size or quality or to insist on the suppliers keeping to those standards. As almost the whole minor forest produce business is in the hands of contractors who not infrequently change every year, it becomes difficult to forecast the result.

"14. *Tours.*—The first three months were spent in office going through the files, etc., and during the remaining nine months 142 days were spent on tour.

"15. The Assistant Utilization Officer visited most of the districts to get into personal touch with the local officers and the tradesmen. He also attended the annual sales in several divisions, and explained to the bidders about the creation of the new Utilization department which will help them in disposing of their stocks to the best advantage. They were also informed of the markets for the various minor products, the current rates, and the maximum rates during certain seasons of the year. At the conclusion of some of these sales, the District Forest Officers said that the sales were far more successful, and brought in larger bids than usual."

23. It will be noticed that the profits from our export of timbers to London doubled during the year under review and now amount to nearly one lakh of rupees per annum.

24. The additional work done by the Forest Engineering Branch during the year is as follows :—

(1) *The Beypore Saw Mill* has been run throughout the year and its capacity increased to take care of new business offering.

The only accounts received from the District Forest Officer, Nilambur, show a net profit of a little over Rs. 20,000 for the first five months of operation based on the cost value of logs taken by the mill.

The working of the mill has been much hampered by delays in replacing worn-out and broken parts but it is now working satisfactorily and has been placed directly under the supervision of Major W. F. Chipp, D.S.O., M.C., who is in charge of all saw mills and extraction. Even better results are expected from the working of the mill for the coming year.

(2) *Forest saw mills.*—Three portable forest saw mills were authorized by Government during the year. Much of the machinery was late in delivery so little was done before the end of the year except in selecting sites and erecting buildings for the mills and the staff.

One mill is to be located in the Pollachi depot in order to dispose of the large stocks of timber lying there, to good advantage.

Another is being erected near Sultans Battery in the Chedleth Range of the Wynaad Forest division.

The third will be located at Parappa on the Kasaragod-Mercara road in South Kanara.

The Pollachi mill will start operating in June and the Wynaad mill in July. The Parappa mill cannot be started until October as the engine has not yet arrived from England.

(3) Plans were drawn up for a loading platform in the Nallamalais at Diguvametta and a loading crane was sent there from Mount Stuart.

(4) A report was submitted concerning the future working of the Russellkonda Saw Mill providing for adequate log transport to the mill and for the delivery of a better grade of logs to the mill.

(5) An inspection of the fuel areas tributary to the Mettur project was made and a report submitted on the question of a fuel supply for the duration of the work.

25. The year as a whole has shown real progress and ended with much brighter prospects ahead than was the case the previous year.

All officers of the branch have shown great interest in the work and have done exceptionally well, off-times under discouraging circumstances. Their duties are very strenuous and lie mostly in isolated and feverish localities. Whatever has been accomplished is due largely to their devotion to the work in hand. This also applies to the subordinates who have faced the same conditions and who in many cases are developing into highly skilled men in work which is new and in many cases very technical.

(Camp) COIMBATORE,
29th June 1926.

C. S. MARTIN,
Chief Forest Engineer.

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